Smithsonian

JANUARY 2001

Camel Trekking in Australia's Outback

[PAGE 84]

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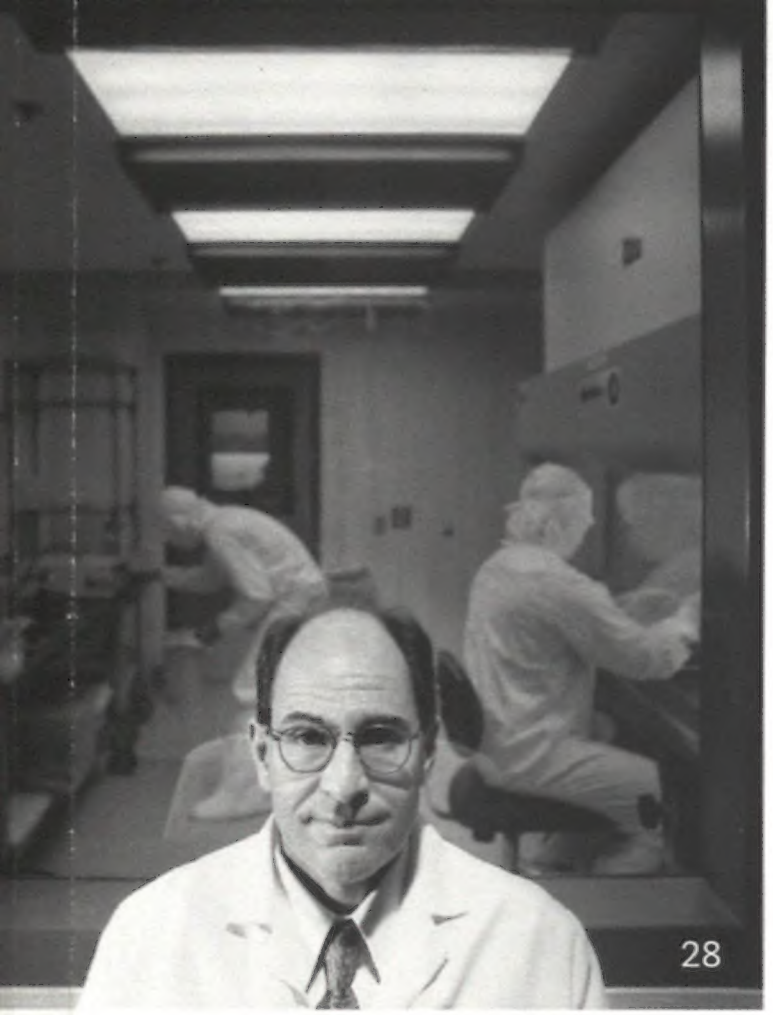
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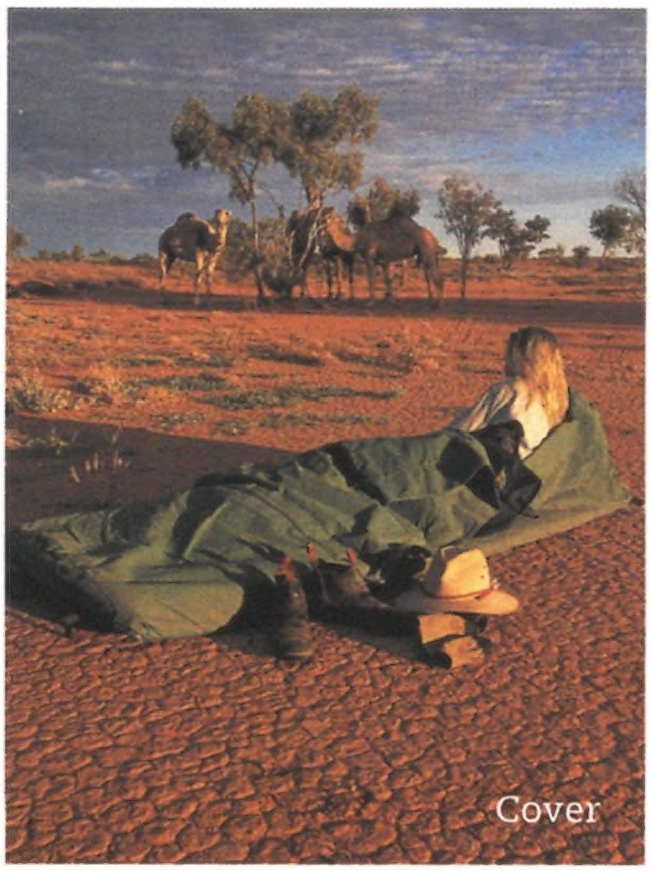

Cover

Cover On a trek in Australia's outback, tour member Kate Howison watches from her "swag" as the camels, untied from their night trees, browse in the early-morning light. For the trekkers morning is a peaceful time—the camels are relaxed and friendly, the light is soft, and the air is filled with birdsong.
PHOTOGRAPH BY MARK S. WEXLER

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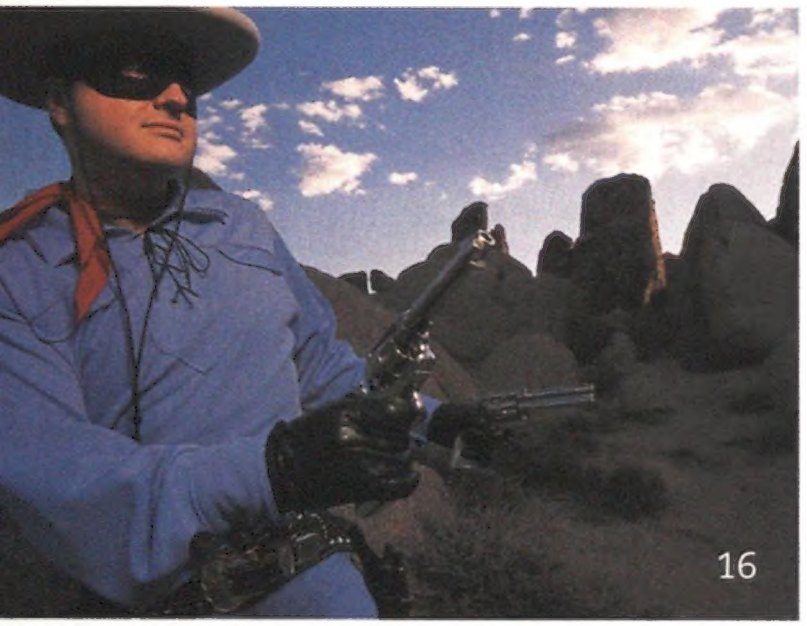

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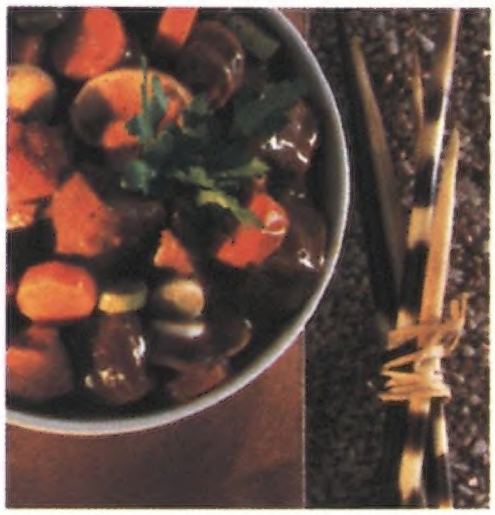

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If light is passed through a polarizer like calcite onto an iron surface, and reflected through a second piece of calcite and enlarged by a lens, the image will show a pattern of alternating light and dark stripes, indicating magnetic domains in the iron.

Iron and Light

By Dr. Taiju Tsuboi

Iron and light might seem to be a strange combination at first, but light has been helpful in learning about the magnetism of iron. Light is propagated in waves, oscillating in all directions, but when light passes through a polarizer such as calcite, it emerges oscillating in a single plane. If you reflect light off an iron surface, as shown in the illustration above, you will see a striped image indicating separate magnetic domains with various directions of magnetization.

Atoms in a crystal of iron form tiny magnets, or magnetic domains. A whole iron magnet has all of its tiny magnets aligned in the same direction. However, non-magnetized iron consists of separate domains, each with different orientations, which cancel each other out, leaving the iron with no magnetism overall.

When plane-polarized light is reflected from magnetic domains, the plane of vibration of the polarized light is rotated. This is due to the Magnetic Kerr Effect. If you apply a magnetic field to non-magnetized iron, the light and dark patterns change. Small domains grow larger, those which are aligned with the direction of the magnetic field. Other domains shrink and disappear with increasing field, those oriented in other directions. The separate domains blend into one, as the magnetizations shift into one direction, and the whole iron piece becomes magnetized. In this way, a single stream of light reveals magnetic domains and directions, something which cannot be seen with the naked eye or a microscope.

About the Author:
Professor Taiju Tsuboi is a graduate from the Graduate School of Kyoto University. He is a professor of physics at Kyoto Sangyo University and specializes in the spectroscopy of magnetic and laser materials.

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A Rare Bird

A NOTE FROM THE SECRETARY

WHEN THE NATIONAL AIR AND SPACE MUSEUM (NASM) opens its spectacular new Udvar-Hazy Center at Dulles Airport in Virginia in about three years, visitors will get to face the Lockheed SR-71 Blackbird head on, and their first reaction may be to duck and get out of the way. That's because, even at rest, the supersonic reconnaissance plane is so flat-out intimidating. It comes at you like an oversize stingray flanked by two mean sharks.

The Blackbird is a marvel of American ingenuity and one of the most striking objects in the Smithsonian. The plane was conceived and built almost 40 years ago, and to this day an SR-71 holds the record for having flown faster than any other turbojet. It can sustain a speed of Mach 3+ (in excess of 2,100 miles an hour) at altitudes of 80,000 feet and more, with the temperature on its titanium alloy skin reaching 750 degrees Fahrenheit. More than twice as fast as a bullet from a .357 Magnum, the SR-71 would have had Superman puffing to keep up. In fact, there's no knowing for sure the plane's true capabilities. Security would have kept them from being publicly revealed, had the limitations of the human body ever allowed them to be reached.

A legend of the air, this SR-71 will loom large at NASM's Udvar-Hazy Center.

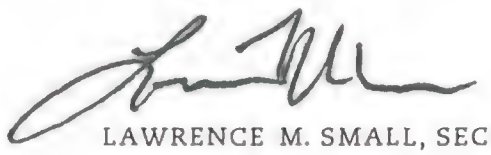
The wingspan of the SR-71 is 55 feet, 7 inches, its length 107 feet, 5 inches, and its height with the landing gear down 18.5 feet. It weighs about 60,000 pounds without fuel, and up to 140,000 pounds with its six fuel tanks full. It has a flying range of about 2,300 miles, but aerial refueling—that improbable maneuver of linking up with a fuel tanker as if it were a floating service station—removes the limitation on distance. The plane's two-person crews sit one behind the other and wear full pressure suits; without them, the flyers' blood would boil at 80,000 feet if there were a pressure failure in the cabin. (There are now fewer SR-71 pilots in the world than there are space shuttle astronauts, and one of them, Tom Alison, is chief of the collections division at NASM.) The Blackbird's paint dissipates heat, and radar-absorbent materials in it confuse systems attempting to track the plane. Up close you can see that the plane sometimes seems not black but a deep indigo blue. So the SR-71 is not quite what it appears, which is appropriate for a plane designed to be an object of evasion.

Only 32 SR-71s were ever built, all in the 1960s. The Air Force put the plane in service in January 1966, and for more than two decades of the Cold War, it gathered vital intelligence on virtually every major area of military and political crisis in the world. With a high-resolution radar imaging system in its nose, the SR-71 would survey 100,000 square miles in an hour. It was so fast that it could get in and out of a location before anyone knew of its presence. Indeed, its presence announced its absence.

The Blackbird flew alone in hostile environments, along flight paths and at intervals unpredictable to those who were being observed. And because it flew so high, the plane was out of reach of an enemy's intercepting blow. It was fired at hundreds of times by surface-to-air missiles, to no effect. No U.S. Air Force flier ever lost his life on a mission in an SR-71. The plane rode the very edge of the envelope and balanced its daring with an outstanding safety record.

The Air Force retired the SR-71 in the 1990s, but in a sense the plane had long since been marked for extinction. In 1968, then Secretary of Defense Robert McNamara ordered its tooling destroyed as a consequence of changed Defense Department priorities, and that made it impossible to build another.

The arc of the SR-71's tour of duty began its upward ascent in 1966 and touched back down to earth in the late '90s. In that three decade interval, the plane and its crews did their brave deeds of service to the nation and built a legend. And, in legend, the Blackbird is flying still—sleek and unmatchably swift, aloft and untouchable.



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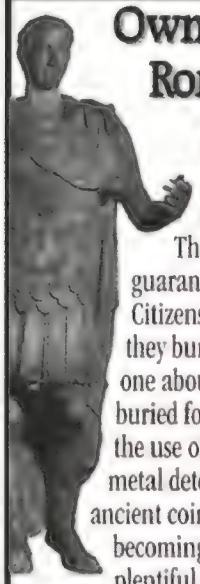

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ANDREW CARROLL

I LOVED LISA NEWMAN'S ARTICLE "Andrew Carroll: Man of Letters" in the November 2000 issue. For more than 30 years I have collected letters that interested me, including some from World War II and earlier.

Nothing can ever replace a person putting ink on paper and writing a letter. The sender shares not only his or her thoughts but also history with the reader, and it doesn't matter how much time has passed between the writing and the reading.

Sandra K. Knoedler
Salem, Ohio

HAVING LONG WONDERED WHAT MODern technology and the world's impatience would do to the old-fashioned letter, I enjoyed your article about Andrew Carroll. The publisher who told Mr. Carroll that a collection of the world's greatest letters would be too broad must not have been aware of the 563-page anthology *A Treasury of the World's Great Letters: From Ancient Days to Our Own Time*, edited by M. Lincoln Schuster and first published by Simon & Schuster in 1940.

Peter Y. Muller
Venice, Florida

I HAVE A COPY OF A LETTER THAT my great-granduncle wrote to the U.S. government when they lost his pension check for having served in the Civil War. In his effort to prove who he was, he got to rambling on about the October 19, 1864, Battle of Cedar Creek, where he said he was the first soldier to be fired upon that dawn by Jubal Early's Confederate Army of the Valley. He was 18 at the time. His letter tells firsthand what happened that morning, that evening and the following days.

Elizabeth Harris
Elk Park, North Carolina

I SALUTE ANDREW CARROLL FOR COLlecting war letters from the Civil War to the present. It sounds as though he has some very interesting letters from the Vietnam War, and I am looking forward to seeing his book *War Letters*. This book will be a great tribute to all military men and women who have fought in many wars for our great nation.

Paul Dale Roberts
Elk Grove, California

SMITHSONIAN'S NOTABLE BOOKS FOR CHILDREN, 2000

I WOULD LIKE TO COMMEND YOUR magazine and Kathleen Burke for SMITHSONIAN's annual review of books for children. As an independent children's bookstore owner for the past 16 years, I am delighted to have such a prestigious magazine as yours care about getting children and books together. We love it when our customers ask for a book from your notable selection.

Kay Remick
Richmond, Virginia

WHILE I ENJOYED THIS YEAR'S LIST of books, I found an error. In *Wombat Goes Walkabout*, the wombat is a marsupial, not a "furry rodent."

Billie Tisdale Woods
Fort Smith, Arkansas

KING ARTHUR FLOUR

WHAT A PLEASURE READING PER OLA and Emily d'Aulaire's "Baking Up a Business." There should be some warnings published, however, regarding King Arthur Flour's insidious methods of entrapment. First, they offer an excellent, consistent, high-quality product. Then they give you a couple of free baking demonstrations

and some free recipes that are easy to follow and actually work. Add in free telephone and e-mail baker's help lines, and you're soon hooked. That's how they got me. I see no hope for rehabilitation in the near future. I suspect I'm hooked on baking for life.

John Viestenz
Port Henry, New York

YOU MISSPELLED THE FIRST NAME OF the former governor of Vermont. Madeleine Kunin served as governor from 1985 to 1991.

Madeleine Bachelier
Nashville, Indiana

PAGEANT OF THE MASTERS

THANKS SO MUCH FOR THE ARTICLE "What's Wrong with This Picture?" by Bruce Watson. When I was teaching sixth grade in Las Cruces, New Mexico, during the 1960s, the art teachers of the school district organized an annual "Living Pictures" exhibition. Each school prepared a replica of a work of art that used only the students as the figures. Our art teacher and three hardworking youngsters created Georges Seurat's *Circus Sideshow*. It was a magical experience that, over the years, introduced many children and adults to masterpieces of art.

Roy Morgan
Albuquerque, New Mexico

WRITE TO SMITHSONIAN

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Accents Are Forever

BY THEIR FIRST BIRTHDAY, BABIES ARE GETTING LOCKED INTO THE SOUNDS OF THE LANGUAGE THEY HEAR SPOKEN

BY EDWIN KIESTER, JR.

THE 6-MONTH-OLD LIES HAPPILY in the crib, cooing and babbling to the beaming parents and grandparents who respond encouragingly, eagerly anticipating that first word, that distinguishable "Mama" or "Dada." But, of course, 6 months is too soon to expect such a landmark utterance. Not until somewhere around the first birthday will Baby have developed the power of speech and thus be able to repeat and imitate those cute sounds the adults are making. Prior to that, words are just background noise that doesn't register on the infant brain. Right?

Sorry, wrong, Patricia Kuhl is saying. Well before that first word is joyfully recorded on Baby's growth chart, according to Kuhl, who is director of the Center for Mind, Brain, and Learning at the University of Washington, the supine little person is taking in and carefully filing for future use the nuances of pronunciation—and mispronunciation—of the language heard at cribside. As early as 6 months, Baby begins to differentiate one bit of verbal input from another, mentally reviewing and silently rehearsing for the moment when the vocal cords are ready to deliver. And when the words do tumble out, they will be reproduced with the distinctive, localized twang or lilt overheard in Mommy's and Daddy's (or Mama's and Papa's) own funny speech. Accents, in whatever language, stubbornly hang in there for years, decades, a lifetime, without being easily rubbed out. Aha, I said, thinking of my Southern mother, who said "heah" for "here" until her dying day, my own persistent Pennsylvanianisms, and my wife, Sally.

She was born in the Philippines, began speaking English at 6, has lived in English-speaking Hong Kong and the United States for more than 30 years, holds a doctorate in education from Stanford, and still cannot easily twist her tongue around the English *tz* and *ch* sounds, which blend together in the Philippine languages she learned as an infant. Thus we jokingly snack on "Rich crackers," and have a friend named "Dorothy Ritz." She replies that former Pittsburghers stress the first syllable of "Hello"—"Hell-low."

Accents, in whatever language, stubbornly hang in there for years, decades, a lifetime, without being easily rubbed out.

"Henry Kissinger wasn't born with an accent," Kuhl said, of the German-born ex-Secretary of State who often joked about his guttural pronunciation, "and neither was your wife. He speaks English beautifully, and I'm sure so does she. Yet you can tell they're not native speakers of the language. Why is that? Our research shows that a kernel of that pattern of speaking begins to form in the brain well before actual production of speech. And by the time the baby's first words do come, those distinctive characteristics are solidly in place."

For 25 years, in her laboratory overlooking Lake Washington, Pat Kuhl has been exploring how humans develop spoken language and why, for example, American English speakers can readily distinguish between the *l* and *r* sounds and adult Japanese are consistently defeated by "lake" and "rake." Or, for that matter, why Americans struggle to hear the subtle difference between the *b* and *p* sounds in Spanish, so that "beso" (kiss) becomes "peso" (weight). Working with American, Swedish, Japanese and Russian children, Kuhl has discovered that 6- to 8-month-olds clearly hear and respond to the vowel and consonant sounds in both their own and other languages; 6-month-olds in Tokyo perceive the difference between *l* and *r* just as easily as babies in Seattle. But by the time the same infants are a year old, they have lost that ability. Instead, they zero in on the "home" sounds and tune out unfamiliar ones. The first language keeps fighting off the pronunciations of a new language, so that Kissinger indelibly says "Vashington," my wife says "Dorothy Ritz" and the Chinese students in Kuhl's lab double up with laughter as American colleagues learning Mandarin mix up "shee," meaning "west," with "chee," or "wife."

How in the world do we know that sounds in any language register with a 6-month-old, who can't even say "Dada" yet? Kuhl leads me into an adjoining room equipped with table, chairs, a small loudspeaker and an odd-looking plastic box. She waves

me into a chair. "We call it the 'head-turn' study," she says in a voice that is decidedly Minnesotan. "Mom sits here at the table, with Baby in her lap. An assistant sits across the table, moving a toy that keeps the baby's attention. From the speaker comes 'La la la la' at one-second intervals. Baby is listening, but watching the toy. Then the sound changes to something different: 'La la ra.' And when that happens . . . "

The plastic box lights up. A teddy bear begins to dance and beat vigorously on a drum. "Baby learns that when the sound changes, the bear performs. They turn to watch and get this fancy reward. At 6 months, two out of three Japanese and American kids turn to look. At a year, 80 percent of Americans turn, but only 59 percent of Japanese, just a little better than chance. To them, the two sounds have become the same."

The light goes out and the bear puts down his drumsticks. "Think of it like a computer," Kuhl says to explain how a tiny infant can register sounds and then reproduce them months later. "You feed in data and more data, and it's there in the computer, and one day you hook up a printer here"—she points to her mouth—"and it comes right out."

Back in the mid-'70s, when she was a postdoctoral scholar at the Central Institute for the Deaf in St. Louis, Kuhl showed that monkeys responded to sound changes in the same way, although of course they could not produce recognizable speech. Her report was greeted with polite skepticism. Not at all fazed, when she came to Seattle, she adapted an existing technique for testing infant hearing into the head-turn experiment with human babies. More skepticism: conventional wisdom held that infants' brains weren't sufficiently developed to process sounds and wouldn't be until they were old enough to imitate adult speech on their own. Gradually, Kuhl's has become the accepted view, to the extent that she was recently featured at a White House conference on development of the infant brain.

A baby's brain, Kuhl says, is a work in progress. Even before birth the brain's zillions of neurons, or nerve cells, are reaching out to each other to make connections, or synapses, forming the intricate wiring that guides all life. The pathway from hearing sound to interpreting its meaning is one example.

In Silicon Valley, you hear the accents of Bangalore, Helsinki, Tehran and Taipei mixed in with pure Yankee.

"The baby early begins to draw a kind of map of the sounds he hears," Kuhl says. "That map continues to develop and strengthen as the sounds are repeated. The sounds not heard, the synapses not used, are bypassed and pruned from the brain's network. Eventually the sounds and accent of the language become automatic. You don't think about it, like walking. The sounds your wife heard earlier become more and more embedded into the map, until eventually they are almost ineradicable."

Moreover, sounds are sorted by what Kuhl calls "a magnet effect." Those resembling a prototypical sound in the home language are taken in and interpreted as the home sound. Between the magnet effect and the detailed mapmaking, any attempt to introduce a new language creates "interference," in Kuhl's term. With each passing year, redrawing the map becomes more difficult.

But, I asked, what about children who grow up bilingual? All of us have known kids who were fluent in English on the school playground but spoke another language at home. In fact, Sally has been equally facile from childhood in two decidedly different languages—Cebuano, the language of the central Philippines, her mother's home, and Tagalog, her father's tongue, which in its standardized form is the national language spoken around Manila. In those cases, the infant brain simply draws two maps, and the process is particularly easy when a specific language can be identified with the tone, pitch and pronunciation of each parent.

Not that an adult absolutely can't learn another language, cautions Kuhl, who herself is trying valiantly to master Mandarin Chinese. None of us want to believe that our brains are inexorably fixed, and we can't learn new tricks as grown-ups. But becoming fluent and accent-free in a new language becomes increasingly difficult, and the best time to start is as early as possible, like nursery school, while the brain is still developing. By puberty it can be an uphill struggle, as generations of language students have found. "People talk about a 'window of opportunity' for learning language," Kuhl says. "The implication is that if you miss that opportunity, it's too late. I don't agree. It is more difficult with the years. But not impossible."

English is rapidly becoming the language of science and of computers. In Silicon Valley, just down the road from where I live, you hear the accents of Bangalore, Helsinki, Tehran and Taipei randomly mixed in with pure Yankee. The newspapers carry ads for "accent reduction clinics," and as many as half the kids in a classroom may speak another language at home. All of which makes Kuhl's research about early language learning particularly relevant.

When I arrived home from visiting Kuhl, Sally was waiting for me. "Hellow," I said. "You ought to do something about that accent," she replied.

POINTS OF INTEREST

It's the Wild West!

ACTUALLY, IT'S LONE PINE, CALIFORNIA, WHERE VINTAGE WESTERN MOVIES ARE THE BIGGEST DRAW IN TOWN

BY STEVE KEMPER

A Lone Ranger look-alike mimics the master near the Alabama Hills, the setting for many a TV and movie horse opera.

THOMAS MICHAEL ALLEMAN

I AM A MITE PARCHED AFTER riding clear across Death Valley to Lone Pine, so I ask the barkeep to pour me a dust-cutter while I look over the crowd. I see Buffalo Bill shooting the bull with Doc Holliday. There's the Lone Ranger, twirling his six-guns for an appreciative John Wayne. Roy Rogers glides by wearing his crinkly-eyed grin, probably thinking about "That Palomino Pal o' Mine." At my elbow, a cavalryman with a droopy mustache is making time with a sultry saloon gal who is squeezed into a tight satin gown.

If these images from my boyhood seem brighter than ever, there's good reason. They're passing before me in living color here at the opening of the Lone Pine Film Festival, a quirky annual celebration of the Old West—or rather, the celluloid version of the Old West, where giants in Stetsons roam the silver screen. Lone Pine, California, is only a speck of a place with fewer than 2,000 full-time residents, but one weekend every October it becomes ground zero for fans of vintage westerns, and for costumed impersonators who bring bygone cowboy heroes alive. The festival's idiosyncratic program, put on by local volunteers, focuses on movies and television episodes that were filmed in or near Lone Pine—a list that includes more than 300 titles.

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From 1920 into the 1960s, this was Hollywood's favorite place to shoot B westerns and adventure movies with "foreign" settings, such as *Gunga Din* and *King of the Khyber Rifles.* Several things attracted studios to Lone Pine: it was close to Los Angeles (B westerns were made cheaply and quickly, sometimes in less than a week); the Sierra Nevada provided a magnificent backdrop; and just outside of town, the Alabama Hills were filled with strangely sculpted geologic formations that exuded mystery, romance and rugged character—perfect for horse operas.

Just about everyone who ever starred in a western worked regularly in Lone Pine: Gene Autry, William Boyd (aka Hopalong Cassidy), Roy Rogers, Gary Cooper, Randolph Scott, John Wayne—the list goes on and on. Many popular television series from the '50s and '60s were filmed near Lone Pine, too—*The Lone Ranger, Have Gun Will Travel, Wagon Train, Bonanza.* More recently "the rocks," as locals often call them, have figured in *Gladiator, Dinosaur,* two of the *Star Trek* movies, the remake of *Maverick*, and various commercials.

But Lone Pine's heart belongs to the mythic West, and that's what the festival commemorates. Several thousand people come here to watch old movies, take bus tours into the Alabama Hills ("Walk in the very steps of John Wayne and Roy Rogers!") and listen to veteran actors reminisce. This year's featured guests, all unpaid, include Jack Palance (*Shane* and *I Died A Thousand Times*), Dale Robertson (the TV series *Tales of Wells Fargo*), Ben Cooper (*Johnny Guitar*) and several former ingenues.

With the Sierra Nevada looming in the background, Robert Mitchum, right, canters across the desert not far from Lone Pine. The movie was *West of the Pecos*, made in 1945.

Even the projectionist dresses up like a wrangler during Lone Pine's film festival.

The impersonators aren't the only ones in western regalia. The town is full of kerchiefs, chaps, six-shooters, big silver belt buckles, bigger hats and spurs that jingle jangle jingle, with here and there a smattering of petticoats. Most of the visitors are aging baby boomers and senior citizens revisiting their youth.

The festivities kick off on Friday night with a cowboy concert in the high school auditorium. Sourdough Slim sings and yodels about wanting to die wearing his .44s and his boots. He rouses the crowd with a Homeric ballad by Tex Ritter, repeating the unforgettable chorus: "There was blood on the saddle and blood all around, / And a great big puddle of blood on the ground." It ain't Cole Porter, but then again that tenderfoot probably couldn't rope a steer or shoot worth a dern.

Movies run almost continuously. The titles alone make me want to saddle up and ride through the purple sage: *Flaming Guns, Stagecoach Kid, Spurs, Comanche Station, Danger Trails, Blackjack Ketchum, Desperado.* I begin with *The Round-up*, starring Roscoe "Fatty" Arbuckle. A silent movie from 1920, it's the first feature shot in Lone Pine. The myth of the West was already firmly in place when it was made. A subtitle describes the locale as "a land of magic and mirage," the psychological terrain of most B westerns.

When I take a bus tour out into the rocks, the scenery looks vaguely familiar. Movie stills, mounted on posts, denote the exact locations where those photographs were taken years ago. I sit on the spot where John Wayne strummed a guitar in *Westward Ho*, surrounded by other scrubbed yet virile cowboys. I see where Kirk Douglas saved Walter Brennan's life in *Along the Great Divide* and where the Indians attacked in *How the West Was Won.* In the Lone Pine frame of mind, the real world and the reel world are one.

My favorite spot, it turns out, is a perch overlooking a rocky pass. It's the perfect place for an ambush, and, in fact, Hopalong did dodge a villain's bullet here. Later, as we head back toward town, Red Ryder suddenly materializes on his horse, loping

(TOP) LONE PINE FILM FESTIVAL; THOMAS MICHAEL ALLEMAN

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toward us through the sagebrush. He wheels about and waves in the classic cowboy manner, then disappears into the rocks like an apparition.

On Sunday morning, the impersonators gather at one end of Main Street for the obligatory parade. I watch the Lone Ranger crouch, catlike, with his guns drawn, posing for people with cameras. His real name is Rob Archey, and he works as a detective in Altoona, Pennsylvania. "I see a lot of kids who lack a moral compass," he tells me. "They're carrying real guns and their heroes are pro wrestlers. I wanted to teach them how to choose role models, so I picked the Lone Ranger because he was committed to the Code of the West—honesty, morality, responsibility." Archey visits schools and other places to preach the code. He's here in Lone Pine for fun.

Don Shilling, from Siletz, Oregon, looks dapper dressed in black as Paladin, the gunfighter played by Richard Boone in the television series *Have Gun Will Travel*. So what is all this impersonating about? "We do it to keep the memory of these guys alive," Shilling says. "It was a time before TV turned into a sewer."

Now Shilling joins the other imitators, who are gathering together so people can take a group picture. It is a curiously moving moment. There they all are once again—Hoppy, Gene, Lash Larue, Black Bart, Buffalo Bill, Annie Oakley, not one but two John Waynes, plus Zorro and miscellaneous other cowboys and soldiers.

Many of these look-alikes belong to a group called Duke's Hollywood Cowboys, led by Ermal Williamson. He's a well-traveled actor but these days makes a good part of his living by impersonating John Wayne, whom he vaguely resembles.

When Williamson stepped into Duke's boots eight years ago, fans began helping him to perfect their mutual fantasy. One man gave him pistol grips exactly like Wayne's.

One of many "cowboys" who turn up in Lone Pine during the film festival strums his guitar and sings about the West outside an antiques store on Main Street.

Another supplied a rifle with a "mitten ring" lever like the one Wayne used. A woman took Willamson's measurements and replicated Wayne's 7th Cavalry outfit from *She Wore a Yellow Ribbon*. Another sewed him the leather shirt from *Hondo*. A man gave him a gun belt made by John Bianchi, who made Wayne's, and someone else inserted a big 45-70 bullet in the middle of it, because that's what Wayne did. "People *make* me John Wayne," Williamson says. "They aren't having their picture taken with Ermal; it's with Duke."

I find Lone Pine's small town hall filled with vendors selling western paraphernalia and fall into a conversation with a couple of cowpokes who look like they've stepped straight off a movie set. Jim Contreras and J. D. Houston tell me they both live near Los Angeles and belong to the Single Action Shooting Society, a club whose 30,000 members dress like cowboys and hold shooting competitions with old-time rifles and revolvers. After 17 years of riding and roping on the rodeo circuit, Houston now works for a manufacturer of frontier clothing whose products he is wearing. Contreras is an executive with Isuzu in Buena Park, California. "I always wanted to be a cowboy," he says, grinning, "and now I can afford the stuff to be one." They estimate that their outfits—from boots, spurs, chaps and guns to kerchiefs and hats, with lots of accessories in between—have cost them each about $4,500.

I encounter Hank Williams—this is a real Hank Williams, but not the singer—here at the town hall too. He's selling his new book about the old cowboy stars, *Those Wide Open Spaces*. The cover shows a rocky defile in the Alabama Hills. Williams tells me that he was marked for life by the first western movie he ever saw up on the big screen in Elizabethtown, Kentucky. It was *Three Men from Texas*, a Hopalong Cassidy tale. "I watched it over and over and over," he recollects fondly, "and when I finally left it was dark outside. Whatever Hoppy said, I believed."

The last night, there is a roaring campfire in the town park. Cowboy singers warble "Home on the Range" and "Happy Trails." Cowboy poets celebrate a mule that couldn't be rode and a high-spirited strawberry roan and a mythical screen hero who once "galloped into every kid's backyard." Well dadgummit, guess what. I reckon that old boy is still ridin' hard out there through the land of magic and mirage around Lone Pine. He always will be. Reel western heroes never die.

THOMAS MICHAEL ALLEMAN

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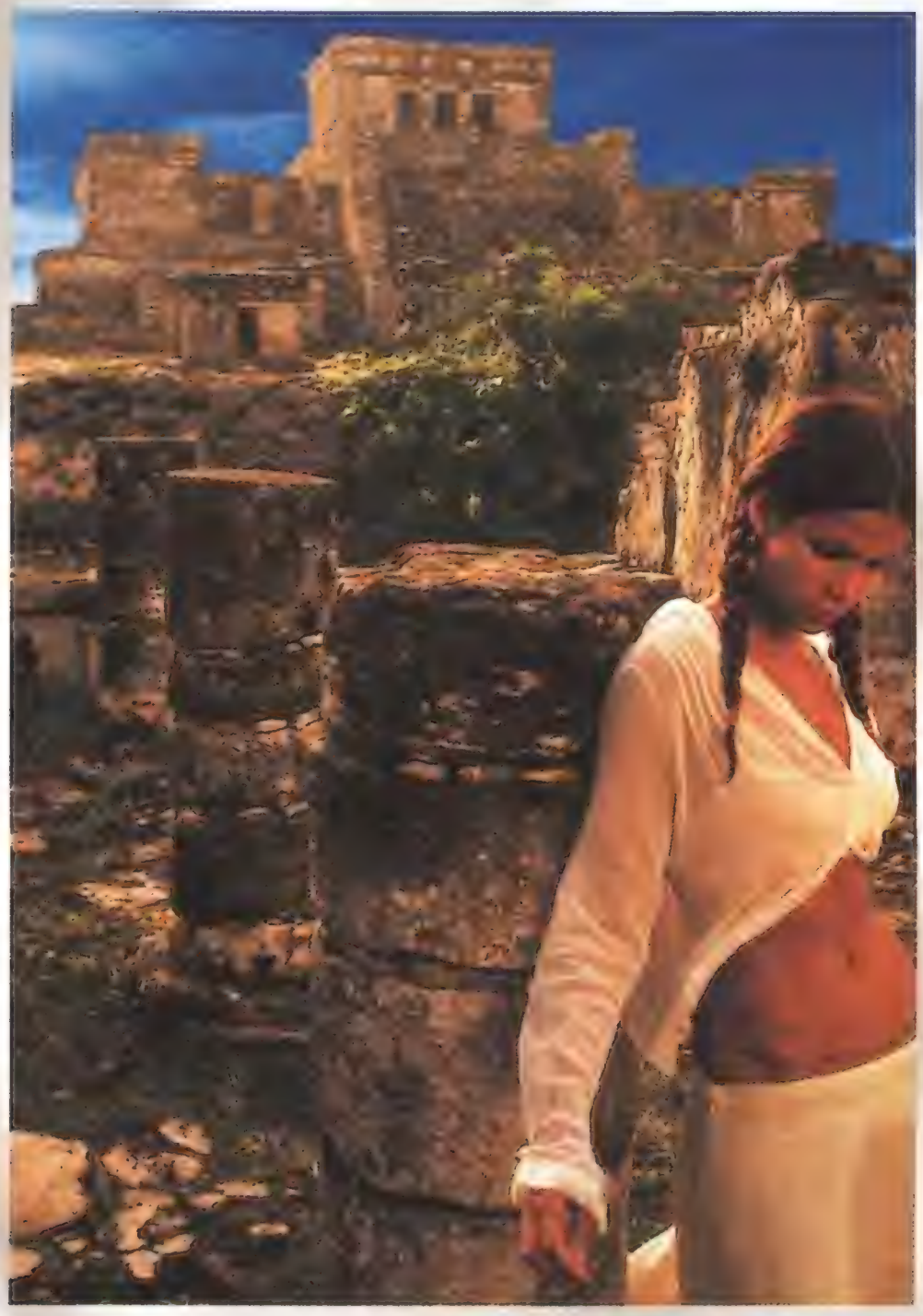
The Power of the Old Ways

SMITHSONIAN HIGHLIGHTS

"THESE SHIRTS ARE A BRIDGE LINKING US to our ancestors," explains curator George P. Horse Capture, a member of the A'aninin, or Gros Ventre, tribe. For the first time, a collection of 400 Plains Indian shirts amassed by engineer and businessman George Gustav Heye, and now held by the National Museum of the American Indian (NMAI), is being studied by Plains Indian scholars. A selection of 49 shirts, exquisitely painted and adorned with beads, porcupine quills and ribbon, is on view at the museum's Heye Center in New York City. NMAI's Horse Capture, who cocurated the exhibition with his son, Joseph D. Horse Capture, of the Minneapolis Institute of Arts, described their work as a rare opportunity. "We believe that many of the shirts still retain some of the power and the spirituality of the old ways." Each is a one-of-a-kind warrior's garment. Little was known about the shirt above, which was worn like a poncho and made of two deer hides; the hanging tabs on either side came from the skin on the animals' legs. The father-son curatorial team, however, determined that the shirt was probably made by the Apsaalooke, or Crow, of Montana about 1885. The design is a subtle and elegant portrayal of the world and its relationship to man; the lush blue represents the sky, the line across the center, the horizon, and the unpainted area, the earth. *Beauty, Honor, and Tradition: The Legacy of Plains Indian Shirts* runs through November 4. —*Beth Py-Lieberman*

KATHERINE FOGDEN/NATIONAL MUSEUM OF THE AMERICAN INDIAN, SI



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SMITHSONIAN HIGHLIGHTS

Presidents in Beads?

AT THE RENWICK GALLERY, SOME UNUSUAL PORTRAITS

As inaugural events get under way this month, visitors may wish to take in an exhibition that honors the highest office in the land with a touch of fun. At the Smithsonian American Art Museum's Renwick Gallery, the portraits of our nation's Presidents, framed in gold, should exude an air of authority—except that they are all rendered in millions of tiny, shimmering beads. California artist Liza Lou uses beads to make everything—even the kitchen sink. Her work *Kitchen*, 1995, is a three-dimensional, life-size, 168-square-foot homemaker's paradise that includes a kitchen sink, a cherry pie cooling on an oven rack, even dust balls under the fridge, all entirely covered in brightly colored beads. In 1997 Lou created a bead-encrusted environment called *Back Yard*, containing 250,000 blades of beaded grass. Lou's Presidential portraits, which she says symbolize "grand campaign promises of a sparkling future," hang in her specially designed gallery. A chandelier, a flag, a table with a vase of flowers and a bowl of fruit, are, of course, covered in beads. And on January 20, the beaded visage of the new President will be hung. The exhibition is on view through February 19.

Smithsonian Website

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At the Magazine's homepage, click on "Events" to go to the calendar and view on-line versions of Smithsonian exhibitions and activities. This month our on-line gallery features a few more selections from *Beauty, Honor, and Tradition: The Legacy of Plains Indian Shirts* (p. 22).

Exhibitions and Events

NATIONAL MUSEUM OF AFRICAN ART

Encounters with the Contemporary (January 7, 2001, through January 6, 2002) Works by 31 important African modernists are presented.

Chant Avedissian: A Contemporary Artist of Egypt (through February 19) A series of panels depicting current and

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historical images of political figures, divas, domestic animals and everyday objects by this preeminent artist.

Identity of the Sacred: Two Nigerian Shrine Figures (through April 2) Two different Nigerian societies—the Igbo and the Urhobo—are compared through a look at these tutelary deities.

ARTS AND INDUSTRIES BUILDING

When the Spirit Moves: African American Dance in History and Art (through June 1) Historical artifacts and works of art show how key characteristics of African dance have come to influence American dance.

Santos: Substance & Soul (through March 31) Features some 40 Latin American devotional santos in a show organized by the Smithsonian Center for Materials Research and Education to explain the science of museum conservation.

LIZA LOU/DEITCH PROJECTS, NEW YORK (2)

Portraits, rendered in shimmering beads, of Abraham Lincoln and John F. Kennedy are on view in an exhibition by artist Liza Lou at the Renwick Gallery.

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Dresden Green Diamond (through January 10) The 41-carat diamond is on view in the Harry Winston Gallery.
Buccellati: Art in Gold, Silver and Gems (through February 25) Works from the Italian jewelry and design firm.

NATIONAL AIR AND SPACE MUSEUM

Pioneers of Flight and *Milestones of Flight* are closed for renovation through July. The Wright brothers' *Flyer*, the *Spirit of St. Louis*, the *Viking Lander* and the moon rock will, however, remain on view.
2001—The Future is Now (on Fridays at 8 P.M. throughout the month) A fiction film series featuring *2001: The Year We Make Contact*, *Galaxy Quest*, *Forbidden Planet*, and *Star Wars: Episode 1—The Phantom Menace*. Call 800-529-2440 for tickets ($3.50 each and $12 for the series).

HIRSHHORN MUSEUM AND SCULPTURE GARDEN

Directions—Dana Hoey (through February 19) Lush, colorful images, mostly of women.
The Collection in Context: Horace Pippin's "Holy Mountain III" (through March 5) A painting portraying a Biblical vision of peace.

RENWICK GALLERY, SMITHSONIAN AMERICAN ART MUSEUM

Amish Quilts from the Collection of Faith and Stephen Brown (through January 21) Amish spiritual values in textiles.
Spirits of the Cloth: Contemporary Quilts by African American Artists (through January 21) Intricate fabric images.

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Persepolis: Documenting an Ancient Iranian Capital, 1923-1935 (through May 6) Archaeological materials from the excavation of the Persian city.
India Through the Lens: Photography 1840-1911 (through March 25) Rarely seen images of India.

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COOPER-HEWITT, NATIONAL DESIGN MUSEUM
[NEW YORK CITY]

Masterpieces from the Vitra Design Museum: Furnishing the Modern Era (through February 4) Design works by Breuer, Le Corbusier and Wright. *The Opulent Eye of Alexander Girard* (through March 18) A retrospective of works by the designer and architect who helped define the 1960s "look."

CLOSED FOR RENOVATIONS

The Smithsonian American Art Museum and the National Portrait Gallery are closed. The Anacostia Museum will reopen this summer.

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Dry ice clouds enshroud a cooler of custom-made gene vectors ready for use in clinical trials.

Designer Genes

SCIENTISTS DREAM OF GIVING PEOPLE NEW GENES THAT WILL STOP A DISEASE OR FIX A PROBLEM. IT IS HARDER THAN ANYONE THOUGHT

BY JEFF WHEELWRIGHT

LIKE A STRAND OF DNA, WHICH coils all over itself within a human cell, the biotechnology industry in San Diego is full of loops and tangles. Biotech, a big part of the "new economy" of the United States, is especially big in this seaside community, where the climate is said to be "technologies-perfect" and the race to put human genes to medical use has brought together large drug companies, shoestring start-ups, university labs and government hospitals.

If San Diego used to stand for bougainvillea, retired admirals and perpetual defense contracts, it now has a street named Genetic Center Drive. The new biotech ventures may have small facilities, and the corporate officers might consist of three shaggy scientists in sandals. But investors are betting that the genes cloned by the companies will deliver new treatments, or even cures, for heart disease, cancer and other ailments.

San Diego's biotech nucleus is Torrey Pines Mesa. Located north of downtown, in La Jolla, the mesa is a steep, sandy promontory rising from the Pacific. It is home to both the Salk Institute and the Scripps Research Institute, and at the top of the mesa is the University of California, San Diego (UCSD). Many industries in America have been built upon ideas originating on university campuses. The gene business is unusual in that researchers have been able to patent and commercialize their ideas without relinquishing their university appointments. UCSD itself has become a biotech player, supplementing its government grants with money from pharmaceutical manufacturers.

Stroll through the eucalyptus trees to the UCSD School of Medicine. In the Center for Molecular Genetics, you'll find the laboratory of Theodore Friedmann, M.D. He heads the university's program in human gene therapy. He also sits on the federal Recombinant DNA Advisory Committee, which assesses proposals for clinical trials. Friedmann was in the gene therapy business long before it was a business—when the idea of manipulating genes to remedy disease was just a concept.

A gene is a message, a biochemical message inherited from your parents. It is one of 50,000 to 150,000 messages that have helped to shape your body or make it run. Each gene consists of a section of DNA, that helical polymer that looks like a twisted ladder. It is actually the rungs of the ladder, composed of just four molecules that can be arranged in seemingly endless combinations, that will tell the cell what to do.

PHOTOGRAPHS BY ROBBIE MCCLARAN

(In shorthand, the molecules are labeled A, G, C and T.) Often a cell is told to produce a protein that will carry out the work of the body. When a disease results from an absent or insufficient or malformed protein, the problem usually can be traced to a glitch in the DNA.

All this had been outlined as far back as 1972. That year Ted Friedmann and another scientist wrote a seminal article, "Gene Therapy for Human Disease?" alerting the public to the technical and ethical issues on the horizon. There was a possibility, they wrote, that the "'good' DNA [could] be used to replace the defective DNA." Fixing the disease at its source in the cell made more sense than replacing the bad protein over and over, as drug therapies did.

But how would the "good" genes be inserted? The Friedmann paper proposed using artificial viruses. Because the whole purpose of a virus is to insert its DNA into a cell and force the cell to work for it, the idea was to make viruses serve as the carriers, or vectors, of beneficial genes.

With the blueprint for gene therapy established, the technology slowly took form. First, techniques were developed enabling scientists to precisely identify the DNA lettering of genes. They learned to make copies of segments of the specific letters, and then to "write" genes and grow them in bacterial cultures. "Libraries" of genes were developed from which researchers could obtain the living instructions for both making proteins and making the components of the viruses that would transport them.

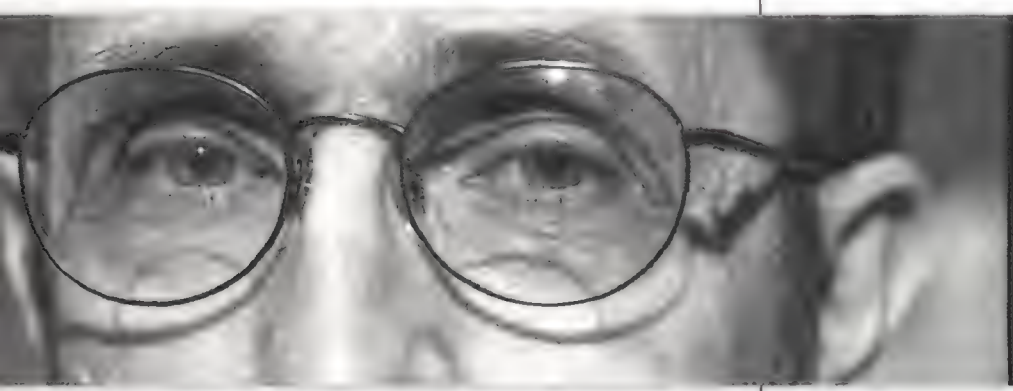
To make a vector, scientists took the genes for the parts of a virus and the genes for therapeutic proteins and put them, one by one, into "helper cells." These are special cells from mice, dogs or even humans that are receptive hosts for the propagation of whole viruses. When all the components are added to these cells, new gene-carrying viruses are automatically created. By careful cultivation, trillions of the gene-carrying viruses can be produced, harvested and prepared for eventual clinical use.

Friedmann studied a gene called HPRT. When this gene is not working, the body can't produce a critical enzyme, the lack of which leads to a rare but terrible condition called Lesch-Nyhan. In an experiment in the early '80s, Friedmann and his associates became the first to insert a disease-related gene—the HPRT gene—into cells in which the gene was defective. In lab cultures, the corrected cells produced the critical enzyme. For this and other work, some in the field have called Ted Friedmann, now 65, the father of gene therapy.

But you won't hear him say it, for Friedmann has not yet fixed the disease in human beings. Lesch-Nyhan turned out to be too complex. And widespread gene therapy in general has remained an idea on the horizon, if very much closer today. Since 1990 more than 350 trials have been launched in the United States, enrolling 4,000 subjects, but a proven and permanent treatment of the sick by altering their DNA has not occurred. Over the years that he has lectured on the topic, Friedmann always starts with the gulf between the concept of gene therapy, so glowingly simple, and the thorny implementation, "which will take slow slogging, clinically, until a success." Careful with words, he thinks that "gene transfer" more accurately describes the current state of the field.

The success that Friedmann long anticipated may well have come last spring, two breakthroughs in treatment, actually, although the elation was overshadowed by bad news arriving first. In September 1999, Jesse Gelsinger, a teenager with a metabolic disorder, died during an experiment at the University of Pennsylvania. It appears he had a fatal reaction to a virus bearing therapeutic genes into his system.

Ever since gene therapy moved out of the laboratory and into the clinic, the problem has been to get the desired genes into the right cells in sufficient numbers. In the Gelsinger experiment the target cells were in the boy's liver, where his metabolic disorder was based. The vector used was an adenovirus, of the family of viruses that cause respiratory infections. The DNA of the virus had been crippled so that it could infect the liver cells but not reproduce there. Also, the virus was fitted with the gene for



Careful with words, Friedmann thinks that "gene transfer" more accurately describes the current state of the field.

making the missing enzyme. Millions of copies of the vector were injected into a liver artery.

After Gelsinger's unforeseen reaction, a number of institutions using adenoviruses in humans halted their gene therapy trials, at least temporarily. Then other deaths, in other trials, came to light. The deaths were not necessarily attributable to the vectors, but rather to the serious diseases that had inspired the tests. Still, it was found that several researchers had not reported their "adverse events" to the National Institutes of Health, as was required. Congress held hearings, and the Food and Drug Administration, which has ultimate authority, tightened its oversight and issued disciplinary actions, though not satisfying everyone. Speaking for many, David Baltimore, president of Caltech and an esteemed biologist, asked, "What the hell are we doing putting [adenoviral vectors] in people?" The controversy has worried Friedmann.

The lead investigator at UPenn, James Wilson, was criticized for having his feet in both camps. He stood to gain financially from the outcome of his experiment. Friedmann believes that conflicts of interest should be scrutinized, but that in this instance the fault lay in the team's inexperience. In preliminary trials with monkeys and human volunteers, the adenoviral vector caused liver problems, reactions which may have been misinterpreted. Last November, a lawsuit filed by Gelsinger's family was settled out of court.

The two successes overshadowed by Gelsinger's death were the real thing. A team of researchers in Paris reported last April that they had corrected a severe type of immune deficiency in two infants. First they withdrew bone marrow cells from

At his lab at UCSD, Theodore Friedmann builds retroviruses from the bottom up.

the children. Then they used a retrovirus to infect the cells with the necessary gene. Put back into the patients, the cells began churning out the protective components of the immune system. "Patients with immune systems fully restored," Friedmann points out. "All tests show the patients normal."

The other report concerned a hemophilia treatment developed by American researchers. In hemophilia the blood fails to clot properly. Patients must receive a clotting factor by means of costly infusions that continue for a lifetime. In type B of the disease, patients lack a protein called Factor IX, controlled by a gene that in them doesn't work. So for the trial a vector modified with the healthy gene was injected directly into the muscles of three subjects. The number of subjects was kept small because the goal was to assess the safety of the technique, not the efficacy. But early results showed that Factor IX was being generated in two patients.

"They [the researchers] reported a correction of a bleeding disorder that has lasted well over a year," notes Friedmann. "A physiological event has occurred, not just the identification of gene product in molecular assays." In other words, not only was a gene directly transferred into human beings but also it was doing what it was supposed to do.

Friedmann's own research has lately focused on retroviruses. Different from an adenovirus, a retrovirus uses its RNA to get its DNA incorporated into the DNA of its target cells. Friedmann's specialty, and one of the hallmarks of this lab, is creating retroviral vectors, the type most commonly used in gene therapy tests. In incubators and centrifuges whirring just across the hall, retroviruses are being built from scratch. His associates, young Ph.D.s on grants, cut out part of the retroviral machinery and splice in DNA corresponding to a human gene. They also tinker with the virus's outer envelope, sticking proteins onto it that make the virus perform new tricks within the body, such as seeking out specific cells to infect. "Ordinary viruses are promiscuous," he comments. "They go where they want to go."

Friedmann is not overawed by the creation of viruses. To him the retrovirus is a tool. "It's a bag of protein with RNA inside," he says coolly, "a bag with an ability to get inside cells. To make a vector, you can strip down a natural virus or engineer one from the bottom up."

The lab makes "research-grade" vectors. These first novel samples aren't deemed ready to be inserted into human beings. For that you must have a "clinical-grade" vector, one that has passed inspections and met government standards. Friedmann makes reference to "GMP"—good manufacturing practices. The term is taken from the FDA. There is a GMP, clinical-grade, commercial vector lab on the medical school campus, a short walk away. Friedmann and UCSD set it up in 1995 and later secured capital from a foreign drug company.

"Production was needed in large amounts," he says, all of a sudden sounding like a businessman. He opens the door to a nondescript brown building. "UCSD saw the need for good material that you could inject into humans. The idea was that we would spread the clinical use of 'clean' vectors. We concentrated on this aspect to spur the field."

"There's a tremendous risk for a tremendous reward," Charles Prussak says. "You're either a bum or a star."

The company's name is Molecular Medicine LLC. Charles Prussak, the company president, is something of a hybrid. A Ph.D., he started professional life as a research biochemist and saw his DNA taken over, as it were, by the hot virus of the marketplace. His phone ringing constantly, his office walls bare, he relishes the dare and competition of the gene business. "There's a tremendous risk for a tremendous reward," he says. "You're either a bum or a star."

In contrast to the reserved and courtly Friedmann, Prussak, 46, is a rapid-fire guy, humorous but sharp with his elbows. "GMP," he says, gesturing at the forms on his desk, "stands for Generate Mountains of Paperwork. There's a demand for reporting at each step of the [manufacturing] process." Not only is the FDA looking over his shoulder, Roche, the corporate parent, like the

Behind Prussak, gowned figures prepare a shipment at Molecular Medicine.

Cardiologist H. Kirk Hammond hopes to provide an alternative to bypass surgery.

rest of the industry, is nervous about vector safety since the death of Jesse Gelsinger. But Prussak, unworried, insists, "One of these products will be out in a few years and we'll have gene therapy."

Molecular Medicine's customers are pharmaceutical and biotech companies for the most part, which are developing their gene therapies in private. Prussak cannot reveal the companies' names. They send in their research-grade vectors, complete with a gene, for scaling up under controlled conditions.

A contract is signed, and the vector goes into production. The lab here is hardly larger than Friedmann's, but bigger equipment fills the space and the production rooms are sealed. To guard against contamination, workers are sampled at each entry for free-riding particles and bacteria. "The purpose of gowning," says Prussak, "is to protect the people from the virus and the virus from the people." The most critical step in the process is at the end, "when we're doing a fill"—putting the vastly multiplied and purified vector into containers for shipment to the customer.

Was one of his customers by any chance Collateral Therapeutics, founded by a UCSD cardiologist named H. Kirk Hammond?

Prussak just smiles.

Proceeding 100 yards east on the mesa, you come to the VA San Diego Healthcare System, which is affiliated with the university. Dr. Hammond keeps an office and a lab in the building. Many of the aging veterans being treated here suffer from heart disease. When the arteries become impeded by plaque, the blood can't get enough oxygen to the heart muscle, especially when the heart is beating fast during exercise or stress. Chest pain called angina results. Angina affects six million Americans, who represent but 10 percent of those with cardiovascular disease. Drugs can relieve angina, and if not, balloon angioplasty, the forced widening of an artery, may clear the blockage. The most invasive but effective operation is to bypass the sick arteries by grafting veins harvested from the leg or redirecting mammary arteries.

Curing coronary artery disease (CAD) is likely to pose a harder challenge for gene therapists than do the rare metabolic disorders in which a single gene is defective and one restored enzyme can turn things around. CAD is "complex, multigenic, multifactorial," observes Friedmann. That genes have a role in its development is incontestable, but lifestyle and diet probably are more important factors.

What if, instead of trying to correct the narrowed or blocked vessels, doctors could help patients to make new ones? The body does this naturally, sprouting small vessels and capillaries, called collaterals, to provide more blood to the vascular regions where blood flow is poor. A heart under stress, even the positive stress of exercise, will make collaterals. Scientists are familiar with the proteins that stimulate the formation of such blood vessels. Called growth factors, the proteins each have a gene regulating their production. In recent years these genes have been located and cloned.

Now, what if a diseased heart were fed the means to make extra growth factor? Wouldn't the collaterals and blood flow be increased?

To the bottom line: rival heart researchers, Hammond being one, are trying to show that their patented methods of delivering growth-factor genes will lessen the pain of angina and allow longer periods of exercise.

Encouraging the growth of collaterals to ease the functional impairment caused by CAD would seem to be a proper medical use of a technique. But it is easy to see that the same skills could be used to enhance the body of a well person. If you look down the road in gene therapy, you will see, not too far off, attempts to change healthy human beings in order to make them better. If the changes are made to sperm or egg cells, the changes may be passed on to subsequent generations. In a word, eugenics is coming. (You might wish to go back to Friedmann's lab and discuss the matter. Eugenics got a bad name because of experiments by the Nazis in the 1930s and '40s, but Friedmann, though a Jew whose family fled the Nazis, is not hostile to eugenics. "You're going to have to face it," he says. "As a public health measure to treat disease, it's OK." As for the possible abuses of eugenics, "it's the social response that's evil," he says, "not the scientific information.")

Kirk Hammond founded Collateral Therapeutics in 1995 with a few partners. "I sure know a lot more about business than when I started out," he says. "We were five guys and a dog. We had nothing." They had a method to inject a growth-factor gene into the coronary arteries, using a catheter loaded with altered adenoviruses. The next year Hammond published findings that the gene transfer worked in pigs and their heart function improved. In 1996 Collateral Therapeutics landed a major backer in Berlex, the U.S. subsidiary of the German drug giant Schering. In 1998 they went public.

He leans across his desk. The 51-year-old Hammond is dark-bearded, intense, with an almost wolfish presence. For a medical school professor to have launched a stock offering was a controversial move among old guard academics on campus, he admits. "You're perceived in a different way, and it was painful, but I stuck with it. I believed that full disclosure of our financial backing was the way to go. The university is not in the business of commercializing the inventions of its inventors. With corporate arrangements, rapid advances are possible—far more than I could do on NIH grants."

Indeed UCSD, holding title to his patents, seems behind Hammond all the way. "There's no loser in the arrangement except to the sheltered academic who fusses about the old days," he says. "I used to be one of those guys until I made a discovery."

To minimize the conflict of interest, Hammond did not take an active part in the tests of his technique. It's fine by him that the experiment was farmed out to clinicians around the country, at 12 medical centers in all, although eight patients did have their gene injections here at the VA hospital. Hammond and his associates insisted that a control group be included in the trial. One subject in four got a squirt of saline solution only, a placebo, instead of hundreds of millions of viral particles. Their results were compared with those for the patients who received the genes.

Because the FDA requires that the safety of a new technique be established first, the trial was intended to assess the possible danger of the injections as much as the possible benefit. Hammond is cagey about the outcome, for it hasn't been published in a journal yet. "The treatment was safe, I can say that much," he declares, and the company has announced "positive" preliminary results. According to a doctor involved, some patients did show improvement after receiving GENERX, as Collateral named the product. To be exact, some in the trial were able to exercise longer on a treadmill without chest pain halting them, whether it was because of new blood vessels or some other reason. Now a full-scale test of the effectiveness is planned, the last major hurdle before licensing.

A few turns down the hall from Hammond's office is the hospital's cardiac catheterization lab, headed by

"With corporate arrangements, rapid advances are possible—far more than I could do on NIH grants," says Hammond.

Dr. William Penny watches the monitor during a coronary angiography.

Dr. William Penny. Penny conducts such procedures as angiograms and angioplasty. A catheter, a tube less than two millimeters wide, enters through an artery in the thigh and is threaded up to the region of the heart. A dye is injected that shows up on x-rays. The x-ray pictures show the vasculature enmeshing the heart and any blockage of it, hence the degree of disease.

Penny plays a videotape of a recent angiogram. The catheter squirts dye like a runaway garden hose around the heart. Parts of the image are blank though, not spidery-looking, which means that the contrast material isn't getting into the smaller veins. The beating muscle is being deprived of blood and oxygen.

"This patient previously had open-heart surgery," Penny explains. He points out the grafted vein, "the only one that's still fully open." The vein disappears into an ominously blank area. Springing off the graft are tiny branches of collaterals.

"Collaterals are nature's way of performing a bypass," remarks the doctor. "Sometimes that's totally sufficient, and other times these new vessels can't cut it. We don't wish to open this man's heart another time. We're trying to get his heart to grow more collaterals."

A week earlier Penny administered GENERX gene therapy to the man. That is, he had three chances in four of getting it. The subject is in the waiting room right now, as it happens, having come back for his initial checkup. So the trek across the mesa has reached its goal. Not in a medical laboratory or corporate boardroom but at the side of one person in need.

John Smith (not his real name) is a cheerful, ruddy, 65-year-old ex-construction worker, who looks a bit like Santa. "When people say I look good, I say all my scars are on the inside," John jokes. But the picture of health is belied by the delicate way he moves, a watchfulness about his body, lest he strain his tender heart.

Because he was one of the last subjects to enter the trial, it's too soon at any rate for change to have occurred—good changes, more collaterals around his heart, or bad changes, it must be said, if the growth-factor gene were to migrate elsewhere, such as to his retinas, and produce unwanted capillaries.

All the risks have been explained to him, he says. John has battled angina for 20 years. He was forced to retire at age 51. Two heart bypasses have stripped his legs of veins, and further surgery might not even be possible. "I didn't have anything to lose," he says. "When I heard about [the trial], I was jazzed about it. I said I'll go for it. They can try this stuff out on mice, but the human part is necessary. I'd be helping myself if it worked, and it could be helpful to other people too.

"Yeah, I thought about dying," he adds, "but it's only when you're not feeling well that you think about it. First you're out of breath, then the pain. I'd like to get on a mountain bike again and ride five or six miles.

"Since I've been in the study, I've seen a couple of things on TV about gene therapy. Every time I hear about it, I'm wide-eyed and bushy-tailed. There are miracles out there."

Jeff Wheelwright is the author of a new book, The Irritable Heart: The Medical Mystery of the Gulf War. *Robbie McClaran is based in the Pacific Northwest.*

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STUDYING THE NIGHTTIME HOURS ACROSS THE CENTURIES, SAYS HISTORIAN ROGER EKIRCH, SHEDS LIGHT ON PREINDUSTRIAL SOCIETY

BY JOYCE AND RICHARD WOLKOMIR

NIGHT IS FALLING—JUST THE RIGHT TIME TO VISIT Roger Ekirch. Still, his out-of-town guests, looking down from their mountaintop motel, feel unsure about finding their way across Roanoke in the dark.

But this is not the black night of previous centuries, which Roger Ekirch knows so well. This is Virginia in the year 2000, the post-Edison night. As the visitors begin their little journey, high-pressure sodium lights on poles illuminate the highway as if it were noon. Fluorescents light up roadside stores. Signs shine neon red. Darkness creeps in only at the start of Ekirch's suburban driveway, and the visitors become confused. But then their car's quadruple headlights pick out the house numbers.

In 18th-century London, as rendered by Hogarth, many inhabitants of the city's underworld eschewed sleep for revelry and mayhem.

As the visitors walk to Ekirch's door, incandescent light spills from the house, illuminating the walkway and the lawn. Through the living-room window, as if on a brightly lit stage, they see the Virginia Tech historian and his wife, Alice, saying good-bye to their three children and to the baby-sitter. They are going out to a restaurant.

"It used to be, when it got dark, people felt edgy," Ekirch is saying, in the restaurant. It is well lit in here, and nobody has trouble reading the menu. But in other centuries—say from about 1500 into the 1830s, the period Roger Ekirch studies—people relied on torches, hearth fires, smoking candles, walnut oil. . . . "People talked about being 'overtaken' by the night, 'shut in,' 'covered,'" Ekirch says. Looking thoroughly comfortable and unscared himself, he notes that for our ancestors, night meant fear of demons, witches and nighthags. An incubus or succubus might waft into your bed. Ekirch reports: "In one English parish, Lamplugh, out of 52 premature deaths from 1650 to 1663, four people were 'frighted to death by fairies,' seven were 'bewitched,' and one was 'led into a horse pond by a will of the wisp.'"

For 16 years Roger Ekirch has been studying the preindustrial night. Now—without blinking—he can switch his attention from this electrified restaurant to nights of previous centuries, when the landscape was eerily moonlit, or not lit at all, and spooky. To find out about that long-ago night, he has examined contemporary accounts, like the dramatist John Crowne's 1681 observation that night is the "time when Cities oft are set on fire; When Robberies and Murders are committed; When Bandogs howle, and Shreich-Owles Warn the Dying; When Spirits Walk, and Ghosts break-up their Graves."

Only the upper classes, for the most part, could afford candles, says Ekirch. He has explored those nights, when darkness was thick, by combing old newspapers and more than 400 diaries. He has read travel accounts, memoirs, letters. He has studied old poems and plays and novels—remember Thomas Hardy's *Return of the Native*, those midnight bonfires out on the heath? He has examined more than 300 old artworks depicting the night. He has perused court records, coroners' reports, depositions and laws dealing with curfews and crime and lighting. He has analyzed working-class autobiographies, proverbs, nursery rhymes, ballads, sermons, chapbooks, folklore. He has pondered research in medicine, psychology and anthropology. He has enlisted a battalion of linguists to translate from 12 languages.

Nights were dark, and accidents were extraordinarily common. People fell into ditches, ponds and rivers and off bridges; they were thrown by horses unfamiliar with dark paths.

Now, in this Brazilian restaurant blazing with watts, Ekirch tries to convey to his visitors how profound night used to be. In previous centuries, he says, people called night a different "season." Night was as separate from day as a northern winter is from summer. And at night laws blurred and rules shifted. Night's darkness loomed so large in their consciousness that our ancestors evolved a vocabulary to describe its manifestations. "Sun suckers" were rays of the dying sun. A dark sky was said to be "lowry." In Ireland, the hour when a person became indistinguishable from a bush was "day dapple." Each phase of the night had its term: "candlelight," the menacing "dead of night," and "first cock crow" and "second cock crow." And there were "night freaks"—licentious parties.

Moonlight was the "parish lantern," for most night travelers relied on the moon. But to those who depended on darkness to rob passersby of shillings, or whose lanterns lured vessels onto coastal rocks for looting, the moon was the "tattler." Such dark-loving criminals were "moon cursers." So were honest dark-dependent workers, like the linkboys whose torches, or links, guided travelers through city streets on moonless nights. But moonlit or torchlit, nights were dark, and accidents, Ekirch tells us, were extraordinarily common. People fell into ditches, ponds and rivers and off bridges; they were thrown by horses unfamiliar with dark paths. "Accidents were especially common when alcohol was involved, and people were most inclined to drink at night," says Ekirch.

One strategy for traveling in the dark was to wear light-colored clothing. Another was riding a white horse. You might hitch a white horse at the head of your team. In southern England's chalky landscape, people planning night trips piled mounds of light-colored soil to guide them in the moonlight. Another technique was stripping bark from trees to expose the white inner wood.

People began as children to memorize their local terrain—ditches, fences, cisterns, bogs. They also memorized

PP. 38, 39 ANGELO HORNAR/NATIONAL TRUST PHOTOGRAPHIC LIBRARY/UPTON HOUSE (BEARSTED COLLECTION)

Holding the kind of candle-lit lantern that illuminated wooded paths for hundreds of years, historian Roger Ekirch makes his way along Virginia's Blue Ridge.

RICHARD ROBINSON

the magical terrain, spots where ghosts and other nighttime frights lurked. "In some places, you never whistled at night, because that invited the devil," says Ekirch. "You might wear charms or amulets around your neck, and nail horseshoes to your home to fend off witches."

Another reason preindustrial people feared the dark, Ekirch says, besides the danger of witches and accidental drownings, was a belief that night actually did fall, with malignant air descending. To protect themselves, sleepers wore nightcaps. Bed curtains offered privacy, but also fended off miasmal drafts. Samuel Pepys, the 17th-century London diarist and friend and biographer of Samuel Johnson, tried tying his hands inside his bed at night so they would not flop outside the curtains and expose him to night air.

Ekirch leans earnestly across the table. "At night," he says, "outcasts, people living at society's margins, might come into their own a bit—and I've always been drawn, as a historian, to study society's fringes."

He was born in brightly lit 1950. And in his childhood, he had no particular association with the night. "Just catching fireflies, like most kids," he shrugs. His father, a historian at American University, in Washington, D.C., and later at the State University of New York at Albany, inspired him to study history, at Dartmouth College and Johns Hopkins University. "It was a source of great pride to me that my father was actually writing books," he says. Since becoming a Virginia Tech professor, Ekirch has published two books of his own. And now—helped by grants, including a Guggenheim Fellowship—he is finishing a major work about nighttime, based on his research, titled *At Day's Close: Night in Times Past*.

"Actually, I'm a morning person," he says cheerfully. In fact, it is morning now. Ekirch is at work in his book-crammed home office, equipped with a quill pen for atmospherics, in the mountainous country overlooking Roanoke. He is not out much at night, he admits. But he gets reports. For one thing, his wife, a prosecutor, occasionally rides with police on night patrols. Today's police do at least patrol in cruisers equipped with searchlights; their predecessors walked dark streets with only flickering lanterns.

Ekirch's night studies were triggered by a graduate-school friend's observation that historians have virtually ignored the night. The realization that the pre-Edison night was a kind of no-man's-land attracted Ekirch. For potential convicts—robbers, poachers, firewood thieves—the preelectric night, with its concealing darkness, was office hours. But not only criminals were out and about. For one thing, a surprising number of preindustrial people worked at night.

Ekirch cites "night kings" and "goldfinders," who emptied cesspools at night, when few were abroad to be offended. "Scowerers," or garbage collectors, worked at night. So did bakers, preparing fresh bread to sell in the morning. Dyers worked at night, too, but Ekirch has not yet discovered why. He has found, however, that, shortly after midnight, peasants and fishermen would begin carting fish, meat, fruits and vegetables into cities like London and Paris, their carts' wheels rumbling on cobblestones awakening people, who complained.

Francisco Goya's *The Incantation*, c. 1798, may allude to a belief that loathsome creatures, witches and goblins among them, held sway during the hours of darkness.

Rural folk in Italy, France, Germany, Ireland, northern England, and Scotland gathered for after-dark "spinning sessions." At the room's center burned a single lamp or candle. Women with spinning to do sat closest to the light. By sharing the costly lamp oil, neighbors economized. But the real centerpiece of these get-togethers was storytelling: transmitting folklore, local history, tales of the heroic and the supernatural, stories in which the poor triumphed over the mighty. Darkness and flickering lamplight added drama.

For such businesses as iron forges and flour mills, economics demanded a 24-hour day. Servants often washed the household's clothing in the middle of the night because it was disruptive to do it during the day, and the house's mistress might supervise. "Sometimes working at night seemed to have a social function for women, a chance to get away from men and swap stories and gossip," says Ekirch. "I recently read a wonderful set of letters by a 16th-century Italian woman who spent her days quilting and knitting, but set aside midnight and later to read and write—she considered those hours stolen from the patriarchal society in which she lived."

Samuel Pepys wrote in his diary of walking London streets at night and encountering men removing the bodies of plague victims. A workaholic, he often labored late into the night in his job at the Naval Office. At one point, his office consumed so many candles the government called for an audit. On other nights, Pepys was out socializing, or seeking adulterous liaisons, which was risky.

Three or four centuries ago, nighttime crime rates were high. Virtually every major European city had roving gangs, which sometimes included young aristocrats. Often, they assaulted people, not just for money but for the thrill of violence. One British gang of the early 1700s, the Mohawks, sliced off people's noses and ears. Darkness provided cover. Also, at night, etiquette lapsed. During the day, says Ekirch, elaborate social codes required you to gauge an oncomer's status by such clues as his clothes or bearing, and to "give the wall" to your "superiors," letting them walk farthest from the messy street. At night, when it was difficult to tell who was who, you might be less awed by your "superiors." There were some conventions. For instance, you might clang your sword on the pavement to signal you were armed, or hold it upright in the moonlight. You tried to walk in groups, and to walk down the middle of the street, lest someone lunge at you from a doorway or alley.

Robbery and burglary were constant worries. "Samuel Pepys would go on and on about his attempts to hide his money at night, and his inability to sleep worrying about it," says Ekirch. "At one point, Pepys and his father went out in the middle of the night to bury all their silver out back." Money only partly motivated such robberies, Ekirch is convinced: crime sometimes enabled the downtrodden to get back at an oppressive society.

Despite fear of crime, and of tumbling into ditches, many ventured into the preindustrial night for revelry. Bedtime was normally 9 or 10. But people often stayed up much later. In cities like London, the poor frequented all-night taverns, sometimes called night-houses. Ekirch points to one of the Hogarth prints hanging in his

GIRAUDON/ART RESOURCE, NY

office. It depicts such a tavern: a watchman, holding his lantern, talks to a prostitute, who seems to be directing him to a suspect; men exchange stolen goods; a soldier urinates against a wall; men shove an unconscious man into the cellar; others brawl, swinging chairs.

Not all the poor were robbers or thugs, of course. "But many," says Ekirch, "did use the night to poach, smuggle, pilfer, rob orchards, steal lumber, cut down trees." And many whose days were blighted by poverty or ill-treatment sought escape at night. Even slaves in the American South sneaked out at night to dances and parties, or to other plantations to visit their wives or children. Whites sometimes feared attacks by night-roaming slaves; there were horseback slave patrols. After the Civil War, former slave owners and other whites hid behind disguises and continued terrorizing freedmen to keep them indoors at night. Research suggests these patrols were forerunners to the Ku Klux Klan.

The wealthy had their own nightspots, but many upper-class men slummed at night, consorting with streetwalkers, rollicking in rowdy taverns, assaulting watchmen. Genteel wives would wander the darkened lanes of London's pleasure gardens, risking their reputations because these amusement parks were rendezvous sites for adulterers. "And there is also a venerable tradition of emperors and monarchs sneaking out to prowl the streets at night, dating back at least to Nero in the first century A.D.," says Ekirch. "In this respect, the social order became inverted at night, with the weak growing more powerful and the mighty more plebeian."

If our ancestors had one overriding nighttime fear, it was not witches or even cutthroats. It was fire. Blazes were common in congested cities: houses, with wood frames and thatched roofs, ignited easily. And open flames flickered everywhere, especially at night. Passersby carrying torches might set your roof ablaze. Also, householders commonly complained about servants forgetting to bank fires or snuff out candles. Victims of nighttime street attacks often yelled not "Help!" or "Murder!" but "Fire!" That cry was most apt to bring out the neighborhood.

One of Ekirch's discoveries surprised him: in the preelectric centuries, people slept differently. We assume it is normal to slumber more or less continuously through the night. We think of wakefulness as a disorder—insomnia. And common sense suggests that, without electric lights, our preindustrial ancestors must have slept from sunset to sunrise. But Ekirch has found that was not so. Preindustrial people's sleep was segmented. They might lie an hour or more before falling asleep. About four hours later, they would awaken. For another hour or so, they would lie meditating on their dreams or praying. They would talk with bedmates. They might even visit neighbors, similarly awake. They might pilfer or poach. Then they would sleep another four hours or so. People, as a matter of course, routinely referred to their "first sleep" and their "second sleep."

Ekirch traded information with a National Institute of Mental Health psychiatrist, Thomas A. Wehr, studying sleep patterns among volunteers. Deprived of artificial light, these modern people reverted to the preindustrial pattern: sleeping a while, lying awake for one to three hours, then sleeping again. Wehr believes he may have found a reason. Without the stimulus of artificial light, people secrete more prolactin, a pituitary hormone that seems to promote a state of quiet restfulness. That hormone is best known, as Roger Ekirch puts it, "for permitting chickens to brood contentedly atop eggs for long stretches of time." Ekirch is convinced that most preindustrial people slept differently because they had less artificial light recalibrating their hormone production.

In previous centuries, people slept differently in another way, too: bed sharing. It was especially common among the poor, for

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Many corners of the preindustrial city thrived at night: working by candlelight, a vendor readies vegetables for her stall.

In a world dependent on the hearth and candles for light, the greatest danger at night was fire. Here, villagers watch a Russian church going up in flames.

whom the bed was the household's most costly piece of furniture, sometimes representing a third or more of the household's assets. Not just husbands and wives but the entire family might sleep in one bed. A visiting relative might join them. Even a visiting stranger—such as an itinerant farrier—might share the family bed.

In Western Europe, lighting changed little from the Middle Ages until the 1700s. But starting about 1750, especially in urban areas, the character of the night began to alter. Burghers and aristocrats, increasingly prosperous, resented fearing to go out at night because, as Ekirch puts it, "the poor, servants, slaves, and single male adolescents had populated the night and used it for their own purposes." Oil lamps began appearing on streets, then gas lamps. Instead of virtually helpless night watchmen, professional police patrolled. "The Industrial Revolution led to more night work in factories, and that required artificial illumination," says Ekirch.

"Thomas Edison hammered the last nail in the old night's coffin," he adds. Compared with candles and oil lamps, gas illumination was 12 times stronger. But electricity really changed the night: one electric bulb provided 100 times more light than a candle or an oil lamp. Night was becoming what it is today—an artificially illuminated extension of the day.

Roger Ekirch is saying good-bye to his guests, standing outside his front door. It is night again, but the house's lights push back the darkness. And, after several days of driving back and forth, his visitors no longer worry about navigating in the night. For one thing, they can see the lights of Roanoke spread across the valley between this house and their motel on the opposite range of mountains. And they have mastered landmarks, such as the neighbor down the hill—where they must make a left turn—who has paved his front yard and encircled it with bright floodlights, so that it looks like a landing strip for model planes. Gazing down upon this extravagance of light, Ekirch's visitors remember how much a candle cost preindustrial people, and how thick their darkness was, and how spooky.

Occasionally, says Roger Ekirch, even in the electric age, his children fear the dark. "I tell them, 'Your daddy is an expert on night, and he knows a lot about the history of the night, and he can tell you there is nothing to be afraid of!'"

He shrugs. "It doesn't work well," he says.

Joyce and Richard Wolkomir wrote most recently for SMITHSONIAN *about advertising guru James Twitchell.*

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INSIDE BOL

LYWOOD!

"Lights! Camera! Water!" Cued, a mock rainstorm suddenly pounds down on the windows of a pretend Art Nouveau ballroom gotten up for a fantasy New Year's Eve. "Action!" Manisha Koirala, her delicate beauty showcased in a pale chiffon sari, uncorks a right hook that halts just a hair shy of the five o'clock-shadowed chops of Sanjay Dutt, a lug in a dinner jacket. Dancing revelers, girls in frothy white gowns, boys in black tie, skid to a halt. All gawk. "Cut!"

Outside the immense black tent that has been draped over the movie set, a few bony dogs snuffle listlessly at a heap of well-picked-over garbage. A bare-bottomed toddler pokes an empty tin can with a stick. A teenage girl with a naked infant

Crewmen film a typical Bollywood scene: young lovers in an exotic setting.

on her cocked hip idly stirs the yellow dust with a toe, and a cluster of young men in T-shirts and jeans hunkering on thin haunches smoke a shared hand-rolled *bidi*.

The gaudy make-believe inside and the grim reality I observe only a few feet away represent two sides of the same coin. In India, impoverishment creates an insatiable hunger for cinematic glitz. On dozens of bare dirt lots like the one I'm visiting here, an hour's drive from Bombay (now officially called Mumbai), stars like Koirala and Dutt churn out more movies each year than are produced in any other film center in the world. Never mind that most of these pictures bomb at the box office. Never mind that Indian moviemakers find financing harder and harder to come by. So what if the industry is locked into a cycle of predictable plots and spectacle? The fact remains that many, many millions of Indians are hooked on Bollywood.

For most Americans, a movie is just part of an evening out, a break between a day at the office and dinner with friends. For many Indians, a Bollywood extravaganza is a means of escape, however transitory, from the harshness they must endure day after day. This need for relief, say those who make and follow such films, largely explains the seemingly inexplicable hodgepodge of melodrama and music, madcap and mayhem, terror and travelogue that characterizes them. To begin to understand, think: "Fred and Ginger Meet Shaft and Britney During a Perfect Storm on the Road to Bali."

Bhawana Somaaya, editor of G magazine ("for movie buffs, by movie buffs"), has covered Bollywood for decades. "When they've tried to make realistic pictures about the poor and the middle classes, they get miserable attendance," she tells me. "Poor India is not interested in pictures about poor Indians living in ramshackle *jhuggies*. Rural India definitely is not interested in movies about rural India. And the affluent, educated in urban India, are looking away from Bombay and Calcutta to New York and London. People don't want to see problems on the screen."

To the scores of movie magazines in a dozen indigenous languages and the millions of movie fans who devour them, Bollywood is India's irresistible Dream Factory Machine. And the stuff it produces is always the same: boy meets, wins, loses and regains girl, during which time they run through vast wardrobes, turn up at locations all over the world, kiss (rarely) but in no other way indulge their passion, serenade each other with no fewer than six songs, and join chorus lines in half a dozen dance numbers. While all this is going on, family crises erupt and are settled, murders are committed and solved, cars are chased and destroyed. Oh, and the good guys win.

To Indian audiences nurtured on this scintillating Bollywood curry, it all seems to make sense. There is little interest in the kind of linear stories that Western moviegoers consider basic. In fact, most productions follow almost no story line at all. Just ask a man who writes them.

Dancers (left) primp in preparation for a lavish sequence, shown on p. 50. Seeking a special sparkle, Shah Rukh Kahn (below), one of the highest paid actors in India today, sprays his hair with water. A youth (opposite) hawks glamour magazines to stalled motorists. Bombay traffic jams are among the world's worst.

"Of any 100 films made, I'd say only 3 have scripts prepared in advance," screenwriter Anjum Rajabali informs me with a strained smile as he duels with the terrifying traffic on our way to a theater in Bombay late one afternoon. "And when there is a script, no one sticks to it, so I don't know why they even bother."

Bollywood directors operate by the seats of their pants. Almost anyone who wanders onto the set with a suggestion gets to vote. In that sense, Indian filmmaking is like Indian democracy—wild and woolly. Rajabali tells me about a movie distributor from the northern city of Patna coming to town one day and walking into a studio while a film was being edited. "Let's have a little entertainment at this point," the distributor proposed. "Why not!" replied the director. So a musical number was stuck in. "Just like that!" says Rajabali, still sounding incredulous.

Even Rajabali, who has a well-honed wit and a background in Freudian psychology, can't adequately prepare me for what I am about to witness from a balcony seat at the Movie Time Theater, in the western suburb of Malad. *Kaho Naa . . . Pyaar Hai* (*Please Say . . . You Love Me*) was created by veteran director Rakesh Roshan to introduce his actor son, Hrithik, to the Bollywood firmament. The picture is just days out of the can and already a smash. A 26-year-old hunk with big biceps, big chin and big amber eyes, Hrithik plays a poor but honest suitor to Amisha Patel, a dish with big bosom, big hair and big brown eyes, cast as the sweet but clueless daughter of a Mafia don.

Lights down! Curtain up! Music w-a-a-y up! Title ten feet high! Pow! Wham! Bam! Hrithik and Amisha fall in, out of and back in love accompanied by Hrithik on guitar and a gang of chorus kids singing songs of endearment and heartbreak. Amisha's scoundrel of a dad orchestrates murder and mayhem from his swimming-pool-in-the-living-room mansion. The young lovers and their pals dress and undress (offscreen) in lollipop-colored resort wear and go off singing and dancing on a white-sailed ship from which H. and A. tumble overboard and end up marooned on a desert island. They're rescued after Hrithik has the good sense to whip off Amisha's hot-pink micro skirt and make it into an SOS flag. Et cetera.

By the time the film comes to its happy end after three hours plus intermission, I am amazed and exhausted. What does it mean? Perhaps, I reflect, it is nothing more than "Busby Berkeley Does India." After all, my own Depression-era parents consistently refused to attend "serious" movies and were delighted by cavalcades of chorines

This highly stylized song scene depicting courtship was inspired by traditional dress and folk dances of central India.

in top hats high-kicking down a grand staircase in the middle of a love scene. Film critic and historian Leonard Maltin has observed that at a time when paying for a movie might have meant doing without bus fare or food on the table, the kaleidoscopic fantasies of Berkeley and other escapist fare packed American theaters. Indeed, Hollywood films based on the improbable and the ridiculous were what enabled the industry to survive the financial assault of the Depression.

The day after my encounter with Hrithik and Amisha, I call on director Shyam Benegal. At 65, Benegal is highly respected but operates quite apart from the cutthroat competitors in Bollywood's mainstream. He's the leader of what the industry press calls "parallel" films—movies that are aimed at a somewhat more cerebral crowd, don't make it into mass distribution and therefore don't make much money. He is scholarly, small and bald, with a thick gray beard and a brilliant smile. I find him at work in a tiny, dark office on the second floor of a raw concrete structure brashly named the Everest Building.

Benegal is critical of the Bollywood heavyweights. He blames the directors and their financial backers for destroying what he sees as a noble cinematic heritage. The first Indian film, he recounts, was made in 1913. Soon after, Bollywood moviemakers had come into their own, and by the early 1950s, they'd developed a distinctive style, based on the teachings of a 1,000-year-old Hindu text called *Natya Shastra* (*Science of Theater*).

Under tenets set down in that book, "entertainment" must comprise the "nine essences." These are love, hate, sorrow, disgust, joy, compassion, pity, pride and courage. In addition, there is supposed to be a lot of song and dance, as in popular stagings of the epic *Ramayana*, which to this day enthralls Indians.

This mix still goes down well with the public, and India produces some 800 pictures a year, in Hindi and a variety

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of other indigenous languages, compared with Hollywood's 400. While American films dominate the rest of the world, in India they're considered out of step with the traditional notion of entertainment. But, says Benegal, India's captive market has allowed Bollywood to grow fat and lazy. "Mass cinema today is nothing more than a series of continuing sensations. New pictures are made to imitate whatever was most successful previously in order to mop up the largest audience. The common denominator is exceedingly low."

Benegal accuses Hollywood, too, of "appealing mainly to the senses and seldom involving you cerebrally." In both cases, he notes, moviemakers share the notion that entertainment shouldn't tax the mind. "They believe that it's not entertainment if it makes you face the problems of life as you live it. I believe that people want to be engaged at different levels. But the way things are in Bollywood today, the aesthetic and artistic expression are left out of the process."

In his effort to elevate cinematic intellect, Benegal dispenses with song and dance in his own pictures. "My audience expects a little more than what's normally available." But, he acknowledges, "it's a dispersed audience, so you have to work very hard at a marketing strategy."

In truth, the handful of Indian filmmakers admired most in the West have enjoyed little success in their homeland. Of these, the most outstanding is the late Satyajit Ray. Honored around the world for his searching and often painful portrayals of life in poverty-stricken Bengal, Ray was often compared to such giants as Ingmar Bergman and Akira Kurosawa. But he seldom won much audience attention outside intellectual circles in Calcutta. A late and much-beloved Bollywood star screen-named Nargis, who became a member of India's parliament, famously vilified Ray in a 1980 speech for "selling India's poverty to the West."

These days, the large and prosperous Indian communities settled around New York, Washington, D.C. and Silicon Valley, as well as throughout Britain and Canada, are popularizing Bollywood movies in their adopted homelands. Film celebrities like actor Om Puri travel to such unlikely spots as Edison, New Jersey, to promote their latest pictures among expatriates eager for a touch of home. This market has taken on huge proportions and now accounts for as much as 30 percent of the bottom line for some films, and audiotapes of Bollywood sound tracks are even bigger.

Puri, one of the few professionally trained actors in Indian films today, says that he prefers to work in the tiny realm of "art" films. But, being a practical man, he concedes that most of his income and creature comforts come from the Bollywood factory. "I realize this is a contradiction, because I'm very critical of Bollywood," he muses as his wife serves dinner at their com-

In Madras (now officially Chennai), itself a center of moviemaking, a crowd gathers outside a theater (right) to see a film. Billboards at one leading Madras studio (above) are still hand painted.

fortable apartment on Bombay's western edge one evening. "On the other hand, I'm critical of the art filmmakers as well, for not reaching out in a more imaginative way with subjects that are of genuine interest to many people."

Like other insider critics, Puri faults "excessive commercialism" for killing off individual film genres, like mysteries and comedies. What's left is what he calls "the total package—an omnibus with chunks of everything tossed in, like a stew." And directors, he says, are caught in a "sheep mentality."

As do most of today's Bollywood stars, Puri leads a relatively understated life that would be utterly unrecognizable among the hip of Hollywood. The evening of my visit, we dine with plates of chicken and curry in our laps, sitting in plastic chairs on a small concrete balcony outside a simply furnished flat. A brown-and-white mongrel named Jackie, which the couple has rescued from the streets, wangles scraps. Much more an Anthony Quinn than a Brad Pitt, Puri wears his wavy hair long and silvery. His face is as pitted as a walnut. He is dressed in a knee-length *kurta*, pajama-style trousers and thin leather *chappals*, or sandals. While we chat, he eats little but sips Scotch and smokes steadily, stoking the tobacco-cured bass voice for which he's known among fans.

The basic reason for the low-key lifestyle is that Indian stars and directors are increasingly afraid that any show of ostentation will raise their profiles as targets for killers and kidnappers. While I am in Bombay, Hrithik Roshan's father, Rakesh, is wounded in a movie-style shooting that police determine was orchestrated by a notorious Indian crime figure named Abu Salem, on the lam somewhere in the Persian Gulf.

The attack evidently is pegged to the anticipated big earnings of *Please Say . . . You Love Me*. Police believe the father refused to pay the protection money the syndicate boss demanded in a series of satellite-phone calls, and the shooting, carried out by a pair of inept and frail-looking teenagers, is intended as a final warning. Not long after that, in a melodrama suitable for the screen, another legendary outlaw kidnaps the beloved movie star Rajkumar from his Bangalore home and holds him hostage for more than three months. The two incidents are only the latest in a series of extortion-related attacks on prominent film figures.

Many Bollywooders claim they don't merit that kind of attention. Even the half-dozen biggest stars don't make more than $2.5 million a picture, and more commonly half that. While that level of income certainly goes farther in India than in the United States, it doesn't permit the opulent lifestyle of the top Hollywood performers,

The mother nursing her child in a Bombay shanty made of movie posters (right) could ill afford the price (12 rupees, or about 25¢) of a first-class movie ticket (opposite).

those who're paid as much as $20 million per film. Bombay's crushing real estate prices are among the highest in the world these days, right up there with New York's and Tokyo's, as technology and other industries vie for severely limited space with a seemingly endless flow of country folk seeking a better life. And while production costs are much lower than in the United States—only a few Bollywood films have ever crossed the $5 million threshold—one has got to sell an awful lot of tickets for as little as six cents apiece, or even at the uptown rate of a dollar or two, to make that back. This is why only 20 percent of all Indian movies are able to recover their costs.

The morning after the Roshan shooting, with all the Bombay dailies bannering the story, I meet with Anil Kapoor, one of Bollywood's top leading men and a member of another prominent movie clan. He is starring in *Pukar* (*The Call*, as in "to duty"). Produced by his equally famous brother, Boney Kapoor, it is about to open.

Anil is waiting for me in the airy living room/office of his large, four-story home, surrounded by dusty houses on a drab, middle-class street. The gate is guarded by a young man shouldering a rusty shotgun, who shouts word of my arrival upstairs over the din of workmen chiseling bricks in the midst of a renovation project. Anil is dressed in a shiny black jumpsuit, short white socks and blue sneakers. At 41, he wears the lofty pompadour and mustache of

the classic Bollywood male star. He is unnerved by the news of the attack on Roshan.

"This is the result of a widespread perception that we're superrich and live the same sort of lives as the characters we portray," he says as we sip milky coffee and munch sweet biscuits. "It's to be expected in such a poor country as ours. And the danger is made worse by the fact that anyone can hire a chap for 500 rupees, hand him a gun and he'll shoot whomever you tell him to."

There are those others in and around the Bollywood scene who believe organized crime has so thoroughly infiltrated the industry that the two are now inextricably tied. With flops so common and most producers lacking the good management, reliable accounting and collateral to reassure banks and other lenders, financing is always a crisis. And that opens the door to crime syndicates. "The worlds of crime and movies are as close to each other as cousins," Subhash Ghai, one of the biggest directors in India, tells me at his home one quiet Sunday afternoon. "Entertainment draws on the crime world—girls, sex, violence—and the glamour of the film world attracts the criminals."

One legitimate businessman who invests big-time in moviemaking is Bharat Shah, an enormously wealthy international diamond merchant. Small and balding, almost meek in appearance, Shah plays the percentages in his deals with Bollywood. "After 30 years, I can spot a successful film 99 percent of the time," he assures me at the press preview of *Pukar* at the beachfront Sun 'n' Sand Hotel. "It is a risky business, but if you work with a good director, and I work with only the very top, you won't go wrong." On the other hand, Shah admits that he is "100 percent worried" about the Roshan shooting. "It's the glamour that draws the gangsters. I don't know what can be done about it."

Much of the glamour is based on the stunning attractiveness of Bollywood's leading ladies. Win a major beauty contest, and moviemakers come knocking. Aishwarya Rai, a former Miss World, and Sushmita Sen, a former Miss Universe, are now very big in Bollywood. But nudity is out of the question, and suggestions of sex on-screen are very limited—at least by Western standards. Kissing has been allowed for the past 15 years or so, but government censors, many of them women, make sure it stops there.

Indian culture insists that women be closely tied to their families, or at least appear to be. So the stars are chaperoned by their mothers. The older women sit along the edge of the set, knitting and gossiping with each other, while their beautiful daughters are filming.

It's the rare leading lady who'll turn her back on public expectations. Manisha Koirala, whom I'd watched at work slugging her leading man, tries to carry herself on- and off-screen as a modern and independent woman who doesn't have to be accompanied anywhere by her mother. As it happens, she isn't an Indian, but a Nepali and a member of a prominent political family in Kathmandu, where her mother lives. "That's not the point, though," she tells me in her air-conditioned trailer on the back lot, during a break. "After all, if I were a doctor or a lawyer or a banker, would my mother go with me to work? What nonsense!"

Still, she does not deny that her apparent independence frequently hurts her. "India is a very traditional society and anyone who breaks with tradition will suffer. This ensures that change, both in movies and in most other aspects of life, comes very slowly."

Pulitzer Prize-winning journalist Lewis M. Simons has been covering India for more than 25 years. Photographer Jonathan C. Torgovnik is doing a documentary about the cinema industry and culture in India.

From the top left by row: XR™400R, Accord EX V-6 Sedan, Honda 4-Stroke Trimmer, Honda Harmony™ lawnmower, Honda BF130 outboard motor, Honda Super Quiet Generator, Honda Harmony™ Mini Tiller, Acura MDX with Touring Package, Honda Track-Drive Snowblower, Gold Wing® SE, FourTrax® Foreman®. ©2000 American Honda Motor Co., Inc. honda.com

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HONDA

THE MADNESS THAT SWEPT MIAMI

BY DOUG STEWART

POLITICAL CONTROVERSIES HAVE ROCKED FLORIDA LATELY, BUT THEY CAN'T COMPARE WITH THE HYSTERIA UNLEASHED DURING THE LAND BOOM OF THE 1920S

A carnival atmosphere pervades a 1923 publicity shot at the corner of Alton Road and 41st Street in Miami Beach, organized by impresario and developer Carl Fisher, who helped put South Florida on the map with his marketing gimmicks.

ALONG THE COAST OF SOUTHEASTERN FLORIDA IN 1925, A STRING OF REMARKABLE DISCOVERIES occurred. At one new beachfront resort after another, press agents announced the discovery of gold—not little flakes of gold but buried treasure: doubloons, pieces of eight, gold bullion. The flacks even identified the pirates responsible. Boca Raton had been Blackbeard's hideaway, they said. Another resort had been Captain Kidd's. Sir Henry Morgan, the Laffite brothers, even Sir Francis Drake, had all apparently hidden treasure in South Florida.

Prospective buyers of beachfront lots were encouraged to buy now, then recoup their investment by digging for gold on their own little strip of paradise. In a variation on the theme, a story circulated that dredgers at one resort-in-the-making snagged the corner of a pirate chest but were instructed to keep on dredging; the business of piling sand on the beach for building lots was too profitable to

HISTORICAL MUSEUM OF SOUTHERN FLORIDA

Frequent land sales by smooth-talking auctioneers, such as E. E. "Doc" Dammers (left), fueled feverish speculation in 1920s South Florida.

interrupt on account of some buccaneer's relics.

In the context of the ferocious land mania then gripping the state, this last tall tale was not so far from the truth. Get-rich-quick schemes have periodically seized portions of the U.S. populace like a contagion, but few have been as virulent as the great Florida land boom of the mid-1920s. What started with chilly Northerners seeking a slice of America's newly civilized frontier on which to vacation or retire soon turned into "one of the greatest social and economic movements of population and capital in the history of the world," as Florida land mogul John Holliday Perry wrote exultantly.

From 1922 to mid-1925, it was virtually impossible to lose money on Florida real estate. "To those who lived through it, the Florida boom will always remain a three-year bonanza of wild, wonderful luck," wrote Polly Redford in her 1970 history of Miami Beach, *Billion-Dollar Sandbar*. She was referring chiefly to investors who sold out before boom turned to bust—as booms always do. They were vastly outnumbered by those who bought too late. As one deflated investor recalled years later: "It was worth it just to have been that rich for those few months."

Miami, the "Magic City" and Mecca of the boom-time investor, had been regarded as a pestilent wasteland just a few decades earlier. To Northerners at the end of the 19th century, Florida usually meant St. Augustine, a winter resort for the wealthy and the frail, less than a hundred miles from the border with Georgia. South Florida was like a different country altogether, a rough place of sweltering heat and alligators, trappers' cabins and fishing camps. At its incorporation a little more than a century ago, Miami consisted of two or three stone buildings and a handful of shacks clustered around the mouth of the Miami River. A few paths led off into the scrub, where panthers and rattlesnakes lurked. Clouds of mosquitoes brought misery and disease.

What opened the peninsula's east coast to development was Henry Flagler's railroad. Flagler, an oil baron and a partner of John D. Rockefeller, extended the coastal railroad south from St. Augustine to Palm Beach in 1894 and on to Miami two years later. At the same time, he built a succession of enormous luxury hotels along the line. In addition to his new 450-room Royal Palm Hotel in Miami, he put in roads, courthouses, an electric plant, and water and sewer works; he paid for a city, in effect, to make sure his railroad had somewhere to go.

Miami's population grew from a few dozen year-round residents before the railroad arrived in 1896 to 1,681 people four years later. Over the next ten years, the population tripled, and by 1920, it had surged to nearly 30,000. Newcomers swelled other cities as well—Tampa, Orlando, West Palm Beach—yet they were only the advance guard for the hordes of Northerners that would swarm into the state over the next five years.

A number of conditions made Florida ripe for a land rush. For the first time, the nationwide period of prosperity that followed World War I let many middle-class Americans consider not only taking winter vacations but also buying second homes. With malaria and yellow-fever epidemics no longer a threat, thanks to mosquito control, Florida began to look distinctly inviting. Cars were becoming commonplace, and Packard-driving swells and "flivver hoboes" alike discovered that the Sunshine State was only several days' drive from the big Northern cities. In 1921 the state's agricultural commissioner set the tone for countless future travel brochures when he invited visitors to come on down, stretch out in a hammock "and drink in the beauties of tropical verdure, while fanned by balmy breezes from the bosom of the Gulf Stream." Reinforcing such appeals were a list of more practical lures: state income and inheritance taxes were nonexistent; Prohibition, barely noticeable.

PP. 58, 59 FLORIDA STATE ARCHIVES

Oil baron Henry Flagler (in top hat) transformed South Florida from a sleepy backwater into an international destination when he extended his railroad south to Miami in 1896 and built a modern city, complete with hotel, roads and electric plant.

Winter tourists began buying plots for vacation homes before returning north. Here was a subtropical land more than half the size of Italy with a third of the population of Brooklyn, so there was plenty of land to be had. Along the coast and well into the interior, developers were paying old-timers a few dollars an acre for large tracts of pine and palmetto scrub, and drawing up plans for subdivisions. Local boosters promoted the region as "America's only tropics," an exotic, almost foreign corner of the United States. The Mediterranean building style favored by developers reinforced the idea that this wasn't really the United States at all but France's exclusive Côte d'Azur.

One of the key figures in transforming Florida was Carl Fisher, a hard-drinking automobile racer and dealer from Indiana who had made a fortune in automobile headlights. "Had there been no Carl Fisher," quipped Will Rogers, "Florida would be known today as the Turpentine State." In 1913 Fisher had begun grooming a narrow, alligator-infested reef off the coast of Miami that his wife had deemed "an evil-smelling morass." Fisher imagined it as "a place where the old can grow young, and the young never grow old—the sort of place Ponce de León dreamed about." Over the years, he spent millions pumping sand from the bay and piling it up in the shallows. Altogether, he and others following him would triple the buildable land area. Fisher paid an army of laborers to plant palm trees and Australian pines in his artificial desert as soon as it was dry. Then he began subdividing.

People in the area couldn't understand why Fisher was spending $50,000 a day turning water into land when there were millions of empty acres available on the mainland. Indeed, the first auctions of house lots on what was to become Miami Beach were dismally attended, even when some auctioneers handed out dishes and clocks from the backs of their mule-drawn wagons. Fisher, however, was a born promoter—he once drummed up publicity for his Indianapolis auto showroom by sailing along in a brand-new car suspended from a hot-air balloon—and he quickly turned to more sophisticated publicity than handing out free crockery. He popularized the bathing beauty photograph, which began appearing in Northern newspapers each winter. He rented an illuminated billboard in Times Square to notify wintertime New Yorkers: IT'S JUNE IN MIAMI. He planted a string of hotels in the midst of his Miami Beach holdings, then laid out golf courses and 50 acres of polo fields. A baby elephant caddied for famous visitors. All this razzmatazz, he admitted, wasn't intended to lure tourists so much as buyers for his housing lots. By the early 1920s, Miami Beach was becoming an internationally known resort, and ordinary lots fetched thousands. The price of real estate everywhere in South Florida rose accordingly.

What Carl Fisher started, George Merrick perfected. Merrick, too, created a fanciful new world out of an unpromising landscape. But while Fisher pitched Miami Beach as a playground for the Roaring Twenties' new leisure class—"the Coney Island of Florida," sniffed the old money of Palm Beach—Merrick intended Coral Gables as something more ambitious: a tasteful, tropical utopia for the American middle class.

UPI/CORBIS-BETTMANN

Merrick was genuinely entranced by the subtropics. He adored the lush, dreamy landscapes of Maxfield Parrish (SMITHSONIAN, July 1999), penning overripe poetry in the same vein ("So come, oh my love, to this far-away place / Where sweet romance dawns ever a-new!"). In 1921 he sold the first parcels on what had been his family's citrus grove several miles inland from Miami. For his new development, Merrick borrowed the name of his family's plantation, Coral Gables, dubbed so because of the local limestone used as a building material. The Miami bankers at first refused to back his scheme—the land was too far from the water—but he was undeterred, and soon his heavily promoted lots were being snapped up at a record rate.

Charismatic but reclusive, Merrick considered himself a crusader against bad taste (his poetry notwithstanding). He was a devotee of the City Beautiful movement, which aimed to combat urban squalor and congestion with beauty, order and harmony as expressed through public buildings, parks and monuments. Merrick assembled a team of artists and architects, led by his uncle, a magazine illustrator named Denman Fink, whom he appointed the municipal "Supervisor of Color." Together they oversaw Coral Gables' every design detail, from the shape of water towers to the color of awning stripes.

The favored look, even for modest bungalows on 50-foot lots, was a mix of Old World Spanish and Italian architecture. Small portions of exterior walls were sometimes left unfinished to reveal patches of brickwork and give a weathered appearance. Merrick began laying down thoroughfares marked by grand arches at the ends and fountains at the intersections. To dress up his subdivision, he had thousands of full-grown coconut palms trucked in and planted. Liabilities became assets. A drainage ditch became "40 miles of inland waterway," and house lots along it, "waterfront" estates.

By 1925, Coral Gables had become a real estate sensation, aided by 3,000 salesmen coast-to-coast and a $3 million advertising budget. Elaborate, Spanish-style sales offices opened in New York City and other Northern cities. Prospective home-buyers streamed south aboard a fleet of 76 courtesy buses with "Coral Gables" emblazoned on the sides. During early 1925, America's foremost orator, three-time Presidential candidate William Jennings Bryan, greeted arrivals with a twice-daily speech about Florida's bounty while standing on a platform built out over the Venetian Pool. For his trouble, Bryan earned $100,000 that year, half paid in cash, the other half in land.

Suddenly, everybody wanted to own a piece of Florida. In five years, Miami's population more than doubled to 71,000 year-round residents. Much of the influx seemed to be land speculators. White boundary stakes popped up everywhere. An average lot measured 50-by-120 feet, just large enough for a bungalow. Where parcels in Coral Gables started at $4,000, with one quarter down and three years to pay, those in humbler subdivisions might start at a tenth of this cost. Each morning, a journalist at the *New Republic* reported in 1924, busloads of prospective buyers, fresh from sales offices in Miami, headed well into the interior, often bouncing down rutted roads, to behold "a few hundred acres of burned-over land, some of it still smoking."

The center of the madness was Miami's Flagler Street. Describing the clumps of people listening to sales spiels there and in other hot spots across southeastern Florida in 1925, *Saturday Evening Post* writer Kenneth Roberts observed: "One might think that a number of interesting and simultaneous murders had just taken

Master promoter Carl Fisher tantalized snowbound Northeasterners by sending newspaper editors provocative photographs of pretty women enjoying Florida's beaches.

HISTORICAL MUSEUM OF SOUTHERN FLORIDA

During one of the grand opening events for his $10 million Biltmore Hotel, Merrick pulled out all the stops, ferrying guests by gondola in the moonlight to the hotel's new bay-side annex via a six-mile "Grand Canal."

place behind the facades of a hundred different business establishments, and that the morbid crowds had assembled to talk them over." In the evening, brokers would stroll through the crowds on Flagler Street like circus barkers, calling out their wares—sometimes just lists of acreages and down payments—to the accompaniment of trombones. Frontage for real estate offices on Flagler Street climbed as high as $70,000 a foot, surpassing prices in midtown New York City.

Writer Ben Hecht, then shilling for a real estate operator outside Miami, later recalled the summer of 1925: "Everybody was trying to get rich in a few days. Nobody went swimming. Nobody sat under the palm trees. Nobody played horseshoes."

The land boom's link to terra firma had finally snapped. People were no longer even interested in buying land; most were now buying options on land, called binders. The idea was to sell them at a profit, and fast. As with stock options, binders simplified the gamble while raising the stakes. Those who bet everything they had on them were ruined if forced to come up with an actual down payment when the 30-day option ran out. The binder craze made underlying prices climb faster than ever. Buyers desperate for binders—on any lots that were available—staged near-riots at some opening-day sales in the Miami area, hurling checks and large wads of cash at harried salesmen, who scooped them up in large wastebaskets.

By fall, the warning signs were everywhere that the Florida real estate market no longer rested on a rational foundation. Bankers in Ohio, having watched depositors deplete their accounts to invest in Florida, issued a peevish warning in newspaper ads: "You're going to Florida to do what? To sell lots to the other fellow who is going to sell lots to you."

Defying the omens, George Merrick announced the biggest home-building contract in U.S. history: 1,000 homes to be built for an astonishing $75,000 apiece. Merrick was abandoning any pretense that Coral Gables was a mid-

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Prospective buyers streamed south aboard 76 courtesy buses, a brilliant strategy by Coral Gables developer George Merrick.

dle-class suburb. His new Miami Biltmore Hotel, costing $10 million (double what Uncle Sam paid Spain for the whole state in 1821), was not just a hotel, the publicists explained; it was "the last word in the evolution of civilization." During one of the hotel's grand opening events in 1926, twenty-five Venetian gondolas ferried guests by moonlight from the hotel to its new bay-side annex via a six-mile "Grand Canal," whereupon they were served coconuts split by machete-wielding South Sea islanders.

This sort of hoopla disguised the fact that most of Coral Gables still existed only on paper. During a visit in late 1925, novelist Theodore Dreiser was shocked to discover that 14 of the city's 16 square miles remained unsold and covered with scrawny pine trees. The completed buildings of Merrick's "Marco-Poloish subdivision," he reported in *Vanity Fair*, were widely scattered and "a little remote and lonely." Merrick counted, of course, on a steadily increasing flow of revenue from lot sales to pay for all the schemes—the lavish university that would make Coral Gables "the Athens of the New World," and the string of artificial islands in Biscayne Bay studded with mansions and casinos. Unfortunately, he—and his many Florida imitators—were miscalculating. A boom requires constant infusions of new money to keep going. When the money stops flowing, the boom collapses.

If there was a critical moment when the land market turned sour, it came late in November 1925, when a prominent investor, Delaware Senator T. Coleman du Pont, angrily and publicly pulled out of the Boca Raton development. Midway between Miami and Palm Beach, Boca Raton was the brainchild of the Mizner brothers, Addison and Wilson. Addison was the court architect of the Palm Beach aristocracy (SMITHSONIAN, September 1985); Wilson was a gambler and bon vivant. The Mizners had entered the Florida land-speculation game late but caught on quickly. Their promotions soon exceeded the accepted standards of boom-time braggadocio. "No existing world resort of wealth and fashion compares with *Boca Raton*," one advertisement declared, though many of the lots in what was still mostly pine wilderness were to be just 25 or 35 feet wide. In private, Wilson called Boca "a platinum sucker trap."

When another ad literally guaranteed all lot-buyers a profit, du Pont backed out of the whole scheme in a fury, followed by other major backers. Lot sales dropped to nothing almost at once, and lawsuits began piling up. Boca Raton's crash reverberated through the state. To the public, Addison Mizner wasn't a developer; he was a celebrity, the genius

HISTORICAL MUSEUM OF SOUTHERN FLORIDA

who had created the tropical elegance of Palm Beach. His downfall cast doubt everywhere.

Discounted land came onto the market that fall for the first time. The expected crush of winter land-seekers never arrived. Those who did show up exhibited an unaccustomed choosiness. In January 1926, a 241-foot four-master, pressed into service as a floating hotel, ran aground in Miami's ship channel and blocked all shipping for nearly a month. Developers, already pinched by a rail embargo, were pummeled by the shipping delay. Then the bankruptcies and foreclosures began. By March, the market was flooded with unsold lots. In Miami, sidewalks were empty.

Then came the hurricane.

On Friday evening, September 17, the wind began to shriek, then roar. In Miami, an anemometer recorded winds of 132 miles an hour before disintegrating. Telephone poles snapped off and rammed through walls. A torrent of seawater smashed open the doors of Coral Gables' plush sales office on Miami Beach and surged back out, taking a grand piano with it; the salesman on duty kept his head above water all night by clinging to a chandelier. Few of those in Florida in 1926 had experienced a hurricane before. Of the hundreds of people killed, many were struck by debris when they wandered out into the eye of the hurricane, unaware the storm wasn't over.

Thousands of homes were destroyed; 47,000 people were left homeless. A five-masted steel schooner was found resting in the middle of a downtown Miami street. In the coming weeks, so many cars clogged the roads heading north, there wasn't room for southbound traffic. Typhoid outbreaks and bank failures followed. Though Coral Gables' construction codes helped its buildings weather the storm better than most, George Merrick was ruined. Carl Fisher and Addison Mizner struggled to hang on, but they, too, were finished. Their empires had all been built on credit, and the installment payments had finally stopped coming. A second hurricane two years later proved even more devastating. The Wall Street crash the following year ended any hopes of the boom's resurgence. Florida tourism and construction gradually revived in the late 1930s, but South Florida's economy took 20 years to shake off the tempestuous effects of the boom's collapse.

Physical evidence of the bust lingered for years. In a 1928 edition of the *Nation*, Henry Villard described motoring down the Dixie Highway, the main artery of East Coast traffic: "Dead subdivisions line the highway, their pompous names half obliterated on crumbling stucco gates. . . . Whole sections of outlying subdivisions are composed of unoccupied houses, past which one speeds on broad thoroughfares as if traversing a city in the grip of death." Decades later, people wandering in inland thickets would stumble on vine-covered sidewalks or shallow trenches clogged with tropical vegetation—someone's would-be Grand Canal.

By one estimate, 90 percent of the people who'd dabbled in the Florida land boom had lost money, most of them in the final panicky months. Paper millionaires had discovered overnight they were broke. In his classic 1931 history of the 1920s, *Only Yesterday*, Frederick Lewis Allen identified the crux of the problem: those who came to Florida to gamble in house-lots for the polo-playing class learned too late that the speculators outnumbered the polo players.

Closer to the action, St. Petersburg developer Walter Fuller offered a pithier explanation: The boom collapsed because it ran out of suckers.

Author Doug Stewart would gladly pay $100 down and $25 a month for a sliver of beachfront Florida today.

Palm Beach's Blue Heron Hotel and many other ambitious South Florida properties lay unfinished and abandoned when the market for land collapsed in 1926.

EVERETT COLLECTION

Feeling C

rabby?

The vaults of the Natural History Museum in Paris contain a menagerie of curious crustaceans

PHOTOGRAPHS BY GILLES MERMET

WHENEVER DANIELE GUINOT receives a heavy package, which is quite often, her heart skips a beat. Inside, she knows, lies a jar of preservative and a creature of truly horrifying anatomy: claws built for ripping and shredding, eyes mounted oddly atop stalks, and a crenulated shell sprouting malicious-looking projections. To most of us, these strange creatures rarely warrant our attention, except perhaps at mealtime or if they nip our toes at the shore. But to the world's foremost carcinologist, a researcher at the National Museum of Natural History in Paris, crab diversity provides a window into the astonishing talents of Mother Nature herself.

Feast your eyes on photographs from the Paris collection, and you might glimpse the source of Guinot's fascination. The crab shell, or carapace, may

The many faces of crab diversity (clockwise from top left): Sponge crab, West Africa; elbow crab, Indo-west Pacific; carrier crab, Southwest Pacific.

be round, ovate, triangular or quadrangular, and anchors tiny or extraordinarily long legs. The carapace may be smooth and patterned, or decked with such visual disarray that it resembles an algae-encrusted rock. The most diminutive species, the pea crab, measures only half an inch, while the leggy Japanese spider crab grows up to 12 feet across. Overall, close to 6,500 species of this opportunistic scavenger colonize just about every marine and terrestrial habitat on earth, from 20,000 feet beneath the sea to elevations above

Clockwise from top: Eroded mud crab, North and Central American Pacific; frog crab, Indo-west Pacific; mud crab, Southwest Pacific.

6,000 feet. Yet despite their extraordinary variation, the basic crab form has remained the same for more than 200 million years: two claws, four pairs of walking legs, eyes on stalks and a hard carapace enclosing gills and a soft body.

The images on these pages remind us of conservationist Rachel Carson's sage words, "The lasting pleasures of contact with the natural world are not reserved for scientists but are available to anyone who will place himself under the influence of earth, sea and sky and their amazing life." —*John F. Ross*

Clockwise from top left: Sponge crab, Seychelles; coral crab, Southwest Pacific; demon-faced crab, Japan and China Sea.

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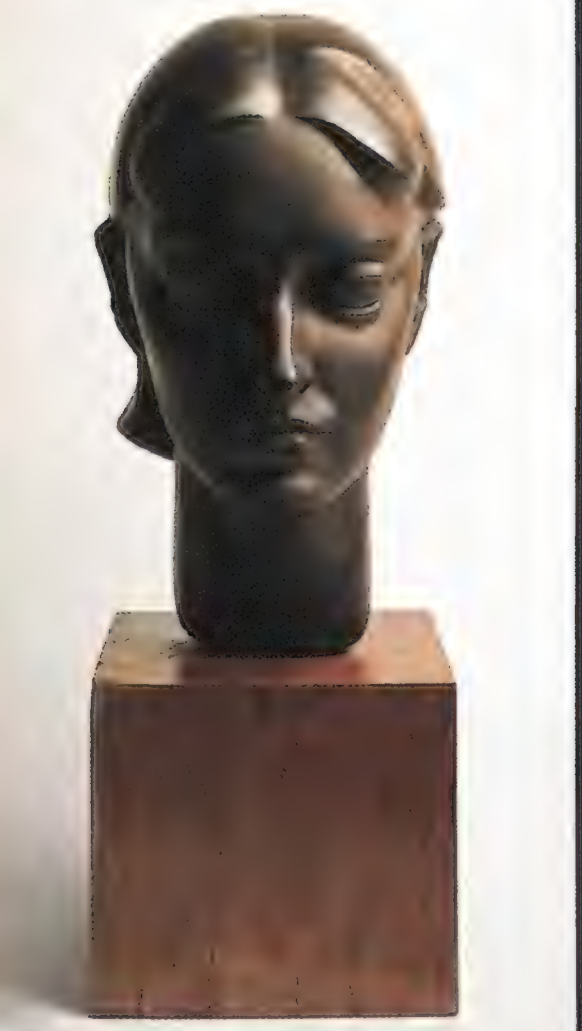
An Oasis of Art



LONG ISLAND CITY'S BEST-KEPT SECRET, THE ISAMU NOGUCHI GARDEN MUSEUM OFFERS A RARE INSIGHT INTO THE SCULPTOR'S WORK

BY BENNETT SCHIFF

Designed by Noguchi himself, the museum's garden combines American and Japanese plantings as a symbol of his dual heritage and provides an artful setting for his lyrical stone sculptures. The museum reveals the immense variety of Noguchi's work (opposite, clockwise from top): *Magic Ring*, wrought of red Persian travertine in 1970; an array of whimsical, yet utilitarian, Akari light sculptures; and a cast-iron portrait head, made in 1929, of American artist Marion Greenwood.

WE ARE LOST IN LONG ISLAND CITY, WHICH IS NOT EVEN A CITY but part of the borough of Queens in New York, a blank sort of place—an industrial zone of bare lots, factories, warehouses, truck depots, parking lots, garages and, here and there, a scattering of houses and even a small 1920s apartment building. It hasn't changed much, in fact, since the protean sculptor and designer Isamu Noguchi came to it in 1960 and set up a studio in a former factory building.

We are trying to find what is now the Isamu Noguchi Garden Museum, which is something of a challenge, it being beyond the compass of a puzzled and irritated taxi driver and hardly conspicuous on the outside, although unforgettably beautiful within. Long Island City is not quite the place where one would expect to find such a museum, and therefore it is not nearly as well known as it should be.

It is in itself, however, a work of art, in its planning and design, and in its display of more than 250 of the sculptor's works. Some of the pieces are arrayed in a garden of 8,500 square feet among white birch, weeping cherry, katsura, magnolia, ailanthus, golden bamboo, Korean boxwood, Japanese black pine, glossy abelia, juniper, and Boston and English ivy. Others are on view in the museum's 11,000 square feet of indoor gallery space, which, along with the garden, comprises something altogether extraordinary. The complex, which is open April through October, was a bequest from Noguchi, who died in 1988 at 84, and is governed today by a foundation.

Because of its somewhat remote location, the museum operates a shuttle bus on weekends from midtown Manhattan. Traffic permitting, it is only a short trip across the 59th Street Bridge—a transit from the overwhelming clangor and sheer bulk of the city center—to this remarkable oasis and back again. Chances are you will have been changed somewhat by where you have been.

The museum, which opened in 1985, is an integrated expression of one of the 20th century's most elegant and creative spirits. It is here that you can see, in examples that Noguchi himself selected, the embracing universality, range and richness of a lifetime's work in stone, clay, wood and metal. Here, too, you can see evidence of his explorations in shaping earth, water, sound, space and light itself. There are, for instance, his parks, plazas and playgrounds, his furniture designs, fountains and lamps, his dance and theater sets, and, of course, his gardens. You could say that of the major sculptors of the 20th century only Constantin Brancusi, Alexander Calder, Henry Moore and Alberto Giacometti were his peers.

There is something else about this remarkable place—its superb catalog, written entirely by Noguchi. In it are photographs of some 200 of the works on view, with revealing comments by the artist. There is no better way of comprehending what he had in mind.

In his statement on the engaging five-and-a-half-foot-tall basalt work *Woman*, from 1983-85, one of his last achievements, Noguchi says: "An abandoned sculpture of 1983 suddenly came to life. Its true nature revealed, it now left no doubt as to what it must be. My every decision came with an inevitability. An overcoming of hesitations."

And, of *Core (Cored Sculpture)*, from 1978, he writes: "Sometimes, out of despair when we have given up, the stone itself sends a message—should one say, bit by bit—so that we may receive it. Finally everything falls into place and emerges with a precision so remarkable it cannot be chance."

For insight into an artist's consciousness, there is little so intimately revealing, other than the letters of Vincent van Gogh, though the two artists were vastly different in temperament, background and ideation.

Noguchi first came to Long Island City in 1960 to be closer to the cluster of stone suppliers in the neighborhood and also to set up a spacious studio, living quarters and, ultimately, an architectural planning office, which he shared with the architect Shoji Sadao. Noguchi worked with Sadao on many landscape, garden and public art projects, and they became close friends. Today Sadao is the executive director of the Isamu Noguchi Foundation.

The sculptor had long had his eye on a two-story redbrick photoengraving plant just across the street from his studio, and when it became vacant in 1974 he quickly acquired it and began extensive renovations, jointly planned with Sadao. Seven years later a cinder-block wing was built on the adjacent site of a former gas station. This addition became the tip of the triangular block that is now the Isamu Noguchi Garden Museum. The entrance, through an inconspicuous door, leads into a tiny foyer as

BERENICE ABBOTT/COMMERCE GRAPHICS INC., LTD.; P. 74 KEVIN NOBLE/ISAMU NOGUCHI FOUNDATION (3); P. 75 SARAH WELLS/ISAMU NOGUCHI FOUNDATION

The museum's large windows allow the garden and galleries to merge into a unified exhibition space. In the gallery above, one can see examples of Noguchi's pieced marble work, done in the late 1960s and early '70s in Italy. Opposite: A young Noguchi, c. 1933, sports a cast on his left wrist, broken, the story goes, when he fell from a trapeze in Alexander Calder's studio.

ENRICO FERORELLI

nondescript as the exterior of the compound. A small doorway gives way to a spacious, angled, open-sided area in which is displayed a selection of the sculptor's large pieces in granite and basalt, the major works of his last years. It is one of 14 geometric, light-filled areas of the museum, each of which showcases a different period of the artist's prolific, 64-year career.

"Through gardens I came to a deeper awareness of nature and of stone," Noguchi wrote in the preface to the catalog. "The natural boulders of hard stone—basalt, granite, and the like—which I now use are a congealment of time. They are old. But are they old as sculpture? One day about thirty years ago I split one. Eventually I was able to make it mine, a 'sculpture' of my time and forever. I called it *Myo*. These are private sculptures, a dialogue between myself and the primary matter of the universe. A meditation, if you will, that carries me on and on one step after another." The museum and catalog, he goes on to say, "attempt to define my role as a crossing where inward and outward meet, East and West."

In many ways, Noguchi's life was as dramatic as his work. There was a fissure running down it as deep and enduring as the ones he would crack and cut into the most obdurate of stone. This dichotomy may say some-

SARAH WELLS/ISAMU NOGUCHI FOUNDATION; ENRICO FERORELLI

thing about his attraction to the opposites of rough and smooth and how they relate to each other in sculpture. In his personal life it represented the duality of East and West, a division that, if he never resolved it in his life, he managed to in his art.

"I work all over the place," he said in a film documentary. "I feel equally at home wherever I am. People seem to welcome me . . . and that's my pleasure, but that's my sadness—that I really haven't got a home." Beginning in the late 1960s Noguchi would spend half of each year in New York and the other half on the Japanese island of Shikoku, where he rebuilt a traditional samurai house and studio, and created his last monolithic masterpieces.

Noguchi's mother, Leonie Gilmour, an American writer and independent spirit, gave birth to Noguchi in Los Angeles on November 17, 1904. His father, the poet Yonejiro (Yone) Noguchi, was not there to welcome his son. He had already returned to Japan, where he soon married a Japanese woman.

Nevertheless, when Noguchi was 2, Yone persuaded Leonie to come to Japan with baby Isamu. There he established them in a separate house. But the relationship soon broke down, and Leonie began a new life in Japan as a translator, writer and teacher of English, not an easy task even for this indefatigable woman. But the situation was even more difficult for a little boy who didn't quite look like the other children in his classroom.

When Isamu was 13, Leonie, who had already informally apprenticed the child to a Japanese carpenter, sent the slight, apprehensive boy to the experimental Interlaken School in Rolling Prairie, Indiana. Think of him there, thrust into an entirely new world, coming from an old one of which he was never really a part, a child of a father who deserted him and of a mother who sent him away.

It was 1918. America had entered the war, and Interlaken was turned into an Army training camp. The school's founder, Edward Rumely, took a fatherly interest in the boy and found a home for him with Samuel Mack, a Swedenborgian minister in La Porte, Indiana, while Noguchi attended the local high school, graduating in 1922.

Rumely then arranged for Noguchi to spend the summer in Connecticut tutoring the son of the sculptor Gutzon Borglum, later to become renowned for the monumental heads of Washington, Jefferson, Lincoln and Theodore Roosevelt he carved into the rock face of Mount Rushmore in South Dakota. The artist had agreed to give Noguchi some training in sculpture in exchange for the tutoring. But before the summer was over, Borglum, in one of art history's more stunning assessments, told Noguchi he would never be a sculptor.

Meanwhile, Rumely, ever on the lookout for the boy's future, had raised funds to send him to Columbia University. Noguchi enrolled in 1922 to study medicine. But, as he described it, "I was rescued from a premedical course at Columbia University by Onorio Ruotolo, director of the Leonardo da Vinci Art School, which had been established in an abandoned church on Tompkins Square in New York City. My first show, of terra-cottas, was held there three months later."

Noguchi had signed up for classes at the school at the suggestion of his mother, who had returned to the United States in 1923 after 17 years in Japan. But by this time, according to the artist's autobiography, he had lost forever his "extreme attachment" to her.

Noguchi proved to be a brilliant and facile student under Ruotolo's guidance. In an astonishingly short time he became a successful academic sculptor, creating life-size traditional figures and exhibiting regularly. But Noguchi lost interest in academic sculpture as quickly as he had mastered it. He had seen an exhibition of Brancusi's sculpture in late 1926—powerfully simple, abstract, and completely different from what Noguchi himself had been doing. In the spring of 1927, having been awarded a

Noguchi's interest in nature is manifest both in his sculpture and in the spaces (opposite) he created for the display of his work. An open, airy gallery (bottom) contains his large stone sculptures. A more intimate space (top) showcases smaller works. Martha Graham (above) "wears" Noguchi's wire sculpture for her role as Medea.

ISAMU NOGUCHI FOUNDATION

Guggenheim Fellowship, the young artist found himself in Paris actually working as an assistant to Brancusi.

"I was initiated in stone by Constantin Brancusi...," Noguchi would write. "He showed me how to square a block out of limestone. This is how I learned of the honesty of sculpture as a prerequisite for overcoming the easy attractions of clay modeling." Before long he would begin to produce his first stone and wood sculptures in a studio in Montparnasse.

Later in life, Noguchi would comment, "Any person I have been influenced by, I've been obliged to betray in a sense. It's only through freeing ourselves from the obligation of being beholden to others that we are really free. . . . You have to deny yourself too, your own past, because it's your own past that's going to then constrain you."

Noguchi's bas-relief *News* (1938-40), made for New York's Associated Press Building, depicts reporters and the tools of their trade.

ENRICO FERORELLI

When he returned to New York in 1929, Noguchi supported himself by sculpting portrait heads of prominent figures, including the architect/engineer R. Buckminster Fuller, inventor of the geodesic dome. Fuller became a lifelong friend, and his visionary, utopian theories later influenced Noguchi's large-scale urban projects. By 1930, the artist had earned enough from these portraits to enable him to return to Paris. Two months later he was on his way via Moscow to Peking, where he remained for eight months studying ink-brush painting.

Noguchi had intended to go to Japan for some sort of reconciliation with his father, whom he hardly knew. He had written to his father to let him know he was coming and had received a crushing reply saying that he should not come to Japan using his father's name. Noguchi had then gone to China instead, but he persisted, and in 1931 he arrived in Tokyo to a cool welcome and a "trying meeting" with his father. According to Dore Ashton's fine biography *Noguchi: East and West*, Yone Noguchi, by now the father of a large family and an ardent nationalist, did not want to acknowledge that he had a half-Caucasian son. It was a defining moment in Noguchi's life.

"Well, I was going back to the place where I was a child, you might say," he reminisced to Ashton. "There was a sort of feeling on my part that my future had some connection with the Orient, probably because I spent my childhood there. Or that I was not completely at home in America, or that my fate as an artist at least could not be entirely determined in America."

But Noguchi's initial reaction to Japan, colored in part by his father's rejection, was one of active dislike, according to Ashton. "Japan is a violent country," she quotes him as saying, "the weather and nature pressed in upon you." He left Tokyo for Kyoto, where he worked for a time in the studio of a master potter before departing for New York.

Noguchi would not set foot in Japan again until 1950. When he did return, his reception was very different. He had aquired an international reputation by then, and Japanese artists were eager to meet him. He stayed long enough to take on several projects—including a memorial room and garden at Keio University for his father, who had died in 1947—and from that time on went back to Japan often.

During the years before his 1950 visit to Japan, Noguchi had already begun to design his first public projects, had produced his first stage design for the renowned dancer Martha Graham, had spent eight months working on a 72-foot-long relief mural in Mexico City, had designed and executed in stainless steel the bas-relief *News* (left) for the front of the Associated Press Building in Rockefeller Center, and had moved to Hollywood, where he was living when the United States entered World War II.

Noguchi, who looked upon public works as an artistic challenge, designed the 24-foot-high painted steel *Red Cube* (1968), for the plaza outside 140 Broadway in New York.

EZRA STOLLER/ESTO

After organizing the Nisei Writers and Artists Mobilization for Democracy, Noguchi voluntarily entered an internment center for Japanese-Americans in Poston, Arizona, with the naive hope that he could design a better environment for the internees. The War Relocation Authority, however, made any such ideas impossible to carry out, and Noguchi, after seven months, was finally allowed to return to his work outside.

From that time until his death it is hard to keep up with him. He buzzed with energy, traveled constantly, became more and more engaged in public projects, and designed gardens in France, Japan, Israel and the United States. In 1952, at the U.S. Embassy in Tokyo, he married the Japanese actress Yoshiko "Shirley" Yamaguchi. The couple lived alternately in Japan and the United States, but divorced in 1957. Throughout the years, Noguchi continued exploring with different forms, techniques and materials.

A walk through the museum is a voyage, carefully delineated by Noguchi himself, through his creative life. There are balsa wood and clay sculptures cast in bronze, sheet aluminum pieces, white marble pieces, and works banded in different colored marble that he made in the quarries of Querceta and Pietrasanta in Italy from 1968 to 1973.

A film in the museum shows the extraordinary sets that Noguchi designed for Martha Graham and her dance company over a period of nearly three decades. His first set, for her 1935 piece *Frontier*, began his exploration of how one could sculpt space. He did it, simply, by taking a rope and stretching it downward from the two top corners of the proscenium to a center point at the back of the stage. By articulating the space in this way, Noguchi had defined volume, made it tangible, made it sculptural.

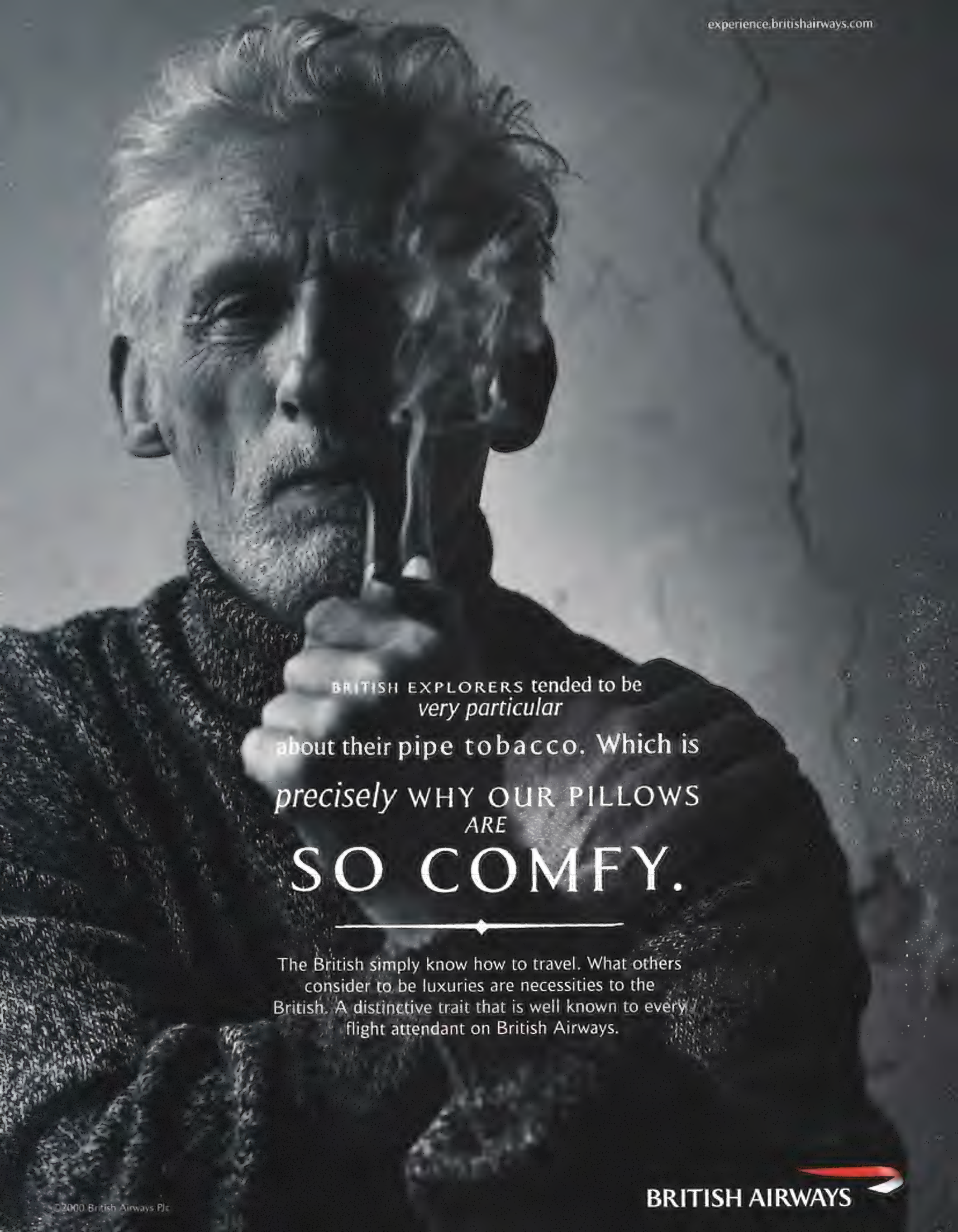
For another stage work, Graham's *Cave of the Heart*, he created a sculpture of gleaming brass wires. Graham, in the role of Medea, approaches it, and in one fluid motion, dons the glimmering costume as she goes on with the dance.

Another film at the museum, in which Noguchi speaks of his life and work, shows the magnetic energy of the man, and his charm, of which all who had contact with him have spoken. Though he was the embodiment of the elegant and sophisticated New Yorker, he also embraced the culture and ideals of traditional Japan. A 1970s photograph of him standing beside one of his late sculptures reveals an enigmatic, tensile, slim figure with the blocky hands of a stonecutter.

This spring an important addition to the museum will go on display—20 of Noguchi's last stone sculptures, recently arrived from his home and workplace on Shikoku. "This is it! This is the last of it," says the museum's curator, Bonnie Rychlak, who is also working on a catalogue raisonné, which when complete will contain precise information on an estimated 5,000 to 6,000 works.

In an inconspicuous corner of the museum's garden lies a small grave marker, 12 inches in diameter and 6 inches tall at its highest point, masterfully cut and designed by Noguchi's assistant Masatoshi Izumi on Shikoku Island. It is engraved simply with the words "Isamu Noguchi" and his dates: "1904-1988." Beneath it lie half of his ashes. The other half are in Shikoku.

Contributing editor Bennett Schiff has written most recently on American artist Martin Johnson Heade and ancient Egyptian art.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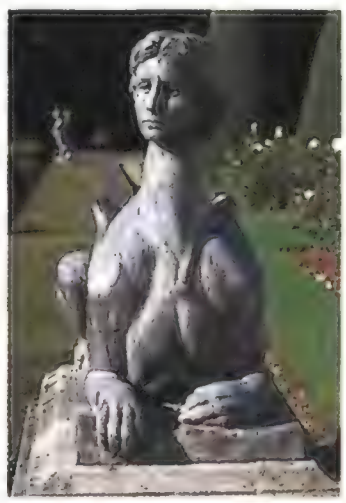
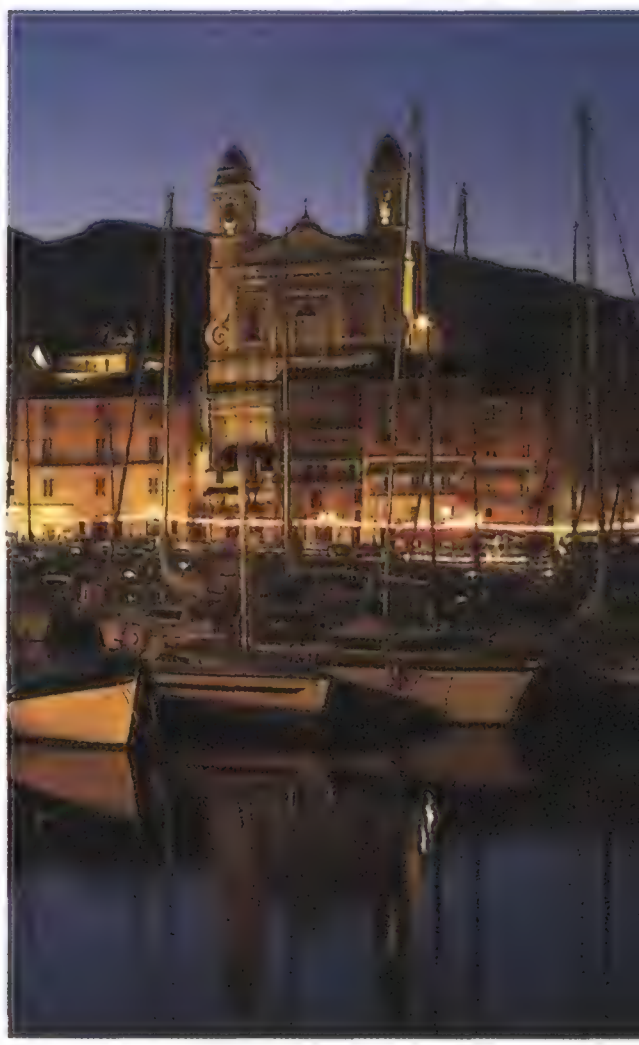
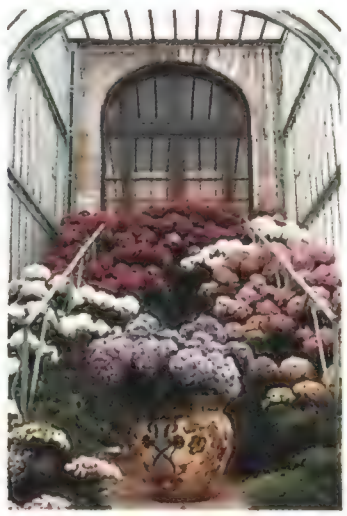






SMITHSONIAN READERS ARE AVID TRAVELERS, EITHER IN REALITY OR FROM THE comfort of their armchairs, and over the years the magazine has taken them from Savannah to the Sargasso Sea, from Panama to Bangalore, from Reno to Warsaw. Our writers and photographers have followed the Silk Road across Central Asia, hiked from Yellowstone to the Yukon Territory, and explored the great museums of Europe.

You might say that these stories are about cultural travel—that is, travel with a focus on history, the natural world, the arts and peoples around the planet. Now we're adding something extra. Beginning this month, each issue will contain a new feature, Smithsonian Journeys. We will include some useful information for people who want to experience these places themselves, and we will add more information to our Website, **www.smithsonianmag.com/journeys**.

The stories will differ from the standard fare offered by most travel magazines. We won't be sipping an impudent Chardonnay at a quaint little café on the Left Bank. We won't recommend the ten best vacation spots in the Mediterranean. The articles will have the same substance that typifies SMITHSONIAN stories. When we explore Alaska's Inside Passage on a cruise ship, we'll go behind the scenes to learn how one of these floating cities works. When we go camel trekking in the Australian outback, as we do in the article on the following pages, we'll learn about the history and the natural history of an extraordinary beast.

In coming months we'll prowl the ghost towns of the American West, take a very wet trip to the monstrous whirlpools of the North Atlantic and seek out the giant megaliths of the British Isles. Write us a postcard or e-mail us at **journeys@simag.si.edu**, and tell us what you think of this new feature. —*The Editors*

Snapshots from future Journeys (clockwise from above): A ghost town from the Old West; Shaker villages; a statue from Blenheim Palace; Bastia Harbor in Corsica; the great greenhouses of Brussels; an albatross on Midway Island.

Smithsonian Journeys

CLOCKWISE: BERTHOLD STEINHILBER; RICHARD ROBINSON; GAIL MOONEY; JOHN MILLER/ROBERT HARDING PICTURE LIBRARY; SKY BERGMAN; JIM LEACHMAN

For dromedary trekkers in Australia's outback,

it's Camelot in the DESERT

BY DEREK GRZELEWSKI ◆ PHOTOGRAPHS BY MARK S. WEXLER

SUNSET AT AYERS ROCK IN AUSTRALIA'S ULURU NATIONAL PARK AND THE MONOLITH glows red as if made of molten metal. Thousands have come to see this light show. All parking lots are full, cameras drone like cicadas and champagne flows in celebration of the raw, elemental beauty. Across the road, an aboriginal family gathers firewood, stashing it in the boot of a beat up car. In the far distance stand the Katatjuta, or Olga Mountains, as monumental as the Rock itself, and also flaming red.

This is all quintessential Australia, as fair dinkum as the endless red land that looks like the surface of Mars softened with a stubble of sun-bleached shrubbery. After experiencing one of the largest rock monoliths on earth, its aboveground hump only a third of its bulk, everything else here seems more acceptable to the mind and the senses, even the coral reef that is larger than neighboring New Zealand, and the desert frogs that bury themselves underground for years to wait out drought. But then, among the mulgas and desert oaks, the eye picks out a different kind of hump. Is this a mirage?

The humps are crested with mohawks of black-and-auburn fur, propped on pillars of muscular legs, and belong to a two-dozen-strong herd of wild dromedaries. The beasts browse casually in the cool of the evening, stoically masticating their cud with the same orbiting action of the lower jaw seen among teenagers chewing bubble gum.

The camels look on with a mixture of curiosity and indifference, as much a part of

Cameleers for a morning, tourists enjoy a sunrise trek near Ayers Rock, a massive sandstone monolith rising 1,100 feet above the red desert of central Australia's Uluru National Park.

Smithsonian journeys

Author Derek Grzelewski's muscle proves no match for Bliss' heft and obstinancy. Camel handling, he soon learned, required the more subtle techniques of coaxing, begging and bribing with a pocketful of orange peels and lettuce.

this timeless landscape as its nearby rocky emblems. It would surprise most visitors to Uluru that these creatures are relatively recent immigrants cast out into the wild when the internal combustion engine made them redundant. But it is still within living memory that camel trains acted as the lifelines for most of inland Australia, bringing supplies to the settlements, mines and sheep stations of the vast interior. They were the go-anywhere jeeps and trucks of the 19th and early 20th centuries, lending their humps and muscle power to build Australia. For half a century, before their spiraling downfall from grace, camels in Australia truly lived up to their Bedouin nickname: Ata Allah. The gift of God.

A gift perhaps, but what a handful! A week after the Uluru encounter, I found myself setting off on a camel trek from a camp by a dried-up billabong, 300 miles southeast of the Rock. The scene was one of unholy chaos: 16 camels roaring, biting and kicking; cameleers running around with naked bush knives, cutting lead ropes and load straps; packs strewn everywhere; and a small group of prospective passengers—suddenly suffering from acute camelphobia—engulfed in a cloud of ocher dust. A welcome sign I'd seen earlier on a camel farm came to mind: "For those of you who have never ridden a camel, we have camels that have never been ridden." They weren't kidding!

Since early morning we had been preparing for our 150-mile desert trek that would take us from the Arckaringa Hills, north of Coober Pedy, across the Painted Desert and the Oodnadatta Track, toward Witjira National Park. We lined the camels in a single file, "hooshed" them down to their natural kneeling pose, fitted the saddles and tied on the loads—boxes, bags and jericans, three weeks of provisions, our swags, or sleeping rolls, and 160 gallons of water. And every few minutes one of the camels would nervously leap to its feet, triggering a chain reaction along the entire string: loads would slide off humps and threaten to knock the animals over, causing mass panic.

Each time this happened we would rush in to calm the camels. On one occasion I picked up the lead rope of the snottiest beast in the string. Her name was Rip. "Hoosh down, Rip. Hoosh. Hoosh. Hoosh." I tried to sweet-talk her into sitting down, tugging gently at the lead rope, pointing to the ground. Rip stared down at me in contempt and pulled back defiantly, her neck as solid and immovable as a tree trunk. "You have to be firmer and more decisive," cameleer and trek organizer Andrew Harper advised, taking the reins. "Hoosh down, Rip! HOOSH!" As if in slow motion, Rip's front knees bent forward and hit the ground with an earth-trembling thud. Next, her back legs folded up, and after a couple of rocking-horse moves, she sat squarely on her haunches. "Good camel, Rip, champion camel," I said, reaching out for the reins. In that instant Rip lashed out at me, baring her large teeth ferociously, green slimy cud dripping from her enormous lips. I sprang back in horror and tripped over the saddle. By then, Rip was back on her feet again.

By four in the afternoon, we were finally ready to leave. Each of us chose a camel and walked along beside it. We would ride only an average of two hours a day, taking turns sharing the two camels that were not carrying supplies and equipment. We hadn't walked half a mile when a camel in the middle of the pack spooked. That set off an all-out stampede, bringing the entire train into a nose-to-tail pileup, tangling ropes and reins into a spaghetti-like mess. There were anxious shouts, the cameleers flashed their knives, and that awful roar filled the air.

"OK, people," Harper announced. "We'll camp here tonight." We began unloading the camels.

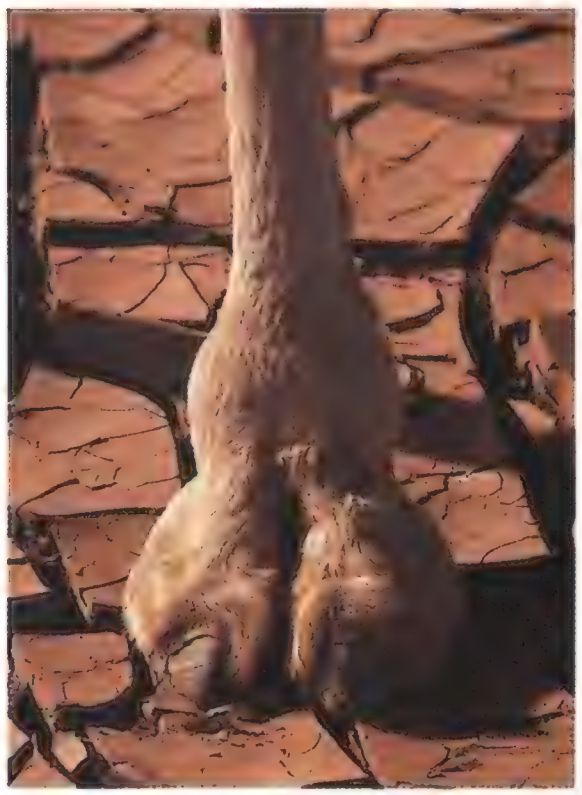
In Australia it's possible still to be an explorer and chart one's own path through the trackless desert. Last year, for example, Harper, a 36-year-old camel wrangler and former jackaroo, followed the Tropic of Capricorn across the continent with just three camels and a dog. During his seven-and-a-half month odyssey, he only visited settlements to pick up supplies. Now, as owner of Outback Camel Company, he offered a taste of this experience to paying customers, and eight of us signed on: a doctor, an architect, a teacher, an accountant, a retired oceanographer, an agricultural engineer, a travel consultant, and yours truly, scribe.

Shepherded by five seasoned cameleers, we were a motley crowd of urbanites seeking a down under wilderness experience. Outback Australia brings to mind a sunbaked desert, searing dry winds and parched throats. But this summer's heavy rains have transformed the desert into a garden of wildflowers. Water would not be lacking on this trip. What would be in short supply, I feared, was my patience with these ungainly beasts.

Day two was a replay of day one. We walked a mile, perhaps less. Again there was a tumult, knives flashed, and packs thumped onto the sand. I slumped down on a rock. Could I possibly bear three weeks of this? I now know why members of the 19th-century Burke and Wills expedition packed 60 gallons of rum just to appease the camel's legendary temper.

Robert O'Hara Burke had set off from Melbourne on August 20, 1860, with a caravan of 20 men, 27 camels, 23 horses and 21 tons of supplies. He aimed to snatch the grandest of all exploration prizes—the south-north crossing of the continent. Until the mid-1800s, Australia remained a terra incognita to the newcomers, with only a sprinkling of settlements along its coastal fringes. The interior—an expanse of red rock and earth, two-thirds the size of the continental United States—was a blank both on the maps and in the minds of the settlers. When the expedition left, the fledgling British colony held its collective breath. Like mountaineers on more recent Himalayan expeditions, the explorers proceeded by establishing a series of camps, an advance party pushing ever north,

Ingenious anatomical adaptations help the dromedary survive in hot, arid conditions, including its cloven hoof (below), which has a cushioned pad underneath that spreads with each step, offering good traction in sandy conditions. On a camel's massive head (bottom), the horizontal slits of the nostrils can be shut tight, keeping out dust and sand.



I swear that a camel's petulant features would soften for a moment after its roar sent us humans fleeing.

the main caravan bringing up the rear. This made for painfully slow progress, and the impatient Burke went farther and farther ahead. Finally, with three companions, six camels and a horse, he dashed for the Gulf of Carpentaria.

They did reach the gulf on February 11, 1861, completing the six-month and 750-mile trek, but their return was to echo Napoleon's homecoming march from Russia. En route, they lost and abandoned four of their camels and ate the other two, as well as Billy, their horse. And still there were untold miles to go.

After burying one of their members in a shallow grave, the three emaciated and bone-weary explorers limped into their advanced base camp expecting relief. Instead they discovered to their horror that the small garrison had been abandoned only ten hours earlier, because Burke's lieutenant believed them dead. Only one of the three would survive the harrowing ordeal that would continue for many more months.

As cameleer Stephen Tuckwell prepares to saddle a camel, he ignores a groaning, belligerent beast that bares its teeth and may decide to spit a mouthful of foul-smelling green cud at him. Saddle design hasn't changed for thousands of years: a pad stuffed with straw levels the hump into a flat platform for a rider or load.

Although Burke's incompetence earned camels little credit, by the end of the next decade they were the most common mode of outback travel. Subsequent explorers could not praise them enough, though only after they had learned the first rule of cameleering: don't hurry a camel. It will only move at its own slow but steady pace, a sort of loose gait. Yet it will do this day in and day out under the hot summer sun, comfortably carrying a load requiring six people to lift. Cameleers also discovered that adding extra ballast—saddlebags filled with sand—steadies a recalcitrant ship of the desert.

Day four of our journey brought about a minor miracle: we were ready to leave after less than two hours of packing. The camels, too, seemed more friendly and relaxed. They traveled all day without mishap. I learned later that our first few difficult days had been an anomaly. This year's unusually heavy rainfall had caused the cancellation of all early-season treks. Our journey was the camels' first professional engagement after many months of off-season idleness, and not surprisingly they felt a little edgy. They needed time to reacquaint themselves with saddles, heavy loads, the discipline of the string, and the daily work routine that would be their way of life for the winter.

As if that weren't enough, they also had to accommodate an odd herd of nervous and overreacting bipeds within their ranks. I swear that a camel's petulant features would soften for a moment after its roar sent us humans fleeing in every direction. But in a few days, we got to know the camels, and, perhaps more important, the camels learned to accept us. A kind of partnership developed out there in this remote and serene wilderness.

The deserts of Australia do not resemble the Sahara with its great expanses of sand. Part woodland and savanna, this land is flat and paved with soil that is as hard and red as crushed bricks. The beauty of the Australian desert lies in small

Trekkers and cameleers enjoy an outback breakfast while Gibson, TC and Cooper keep an eye out for scraps. Unburdened by their loads, the camels become good-natured, often sleeping not far away from the trekkers each night.

things: an ant towing a dead grasshopper, many times its size; a frilled lizard, ingeniously camouflaged against the bone-dry branches of a mulga tree; the calligraphic squiggles of a passing sand python; the perfect geometry of a wildflower or a starfish-shaped seed the size of a nickel. The desert inspires both introspection and camaraderie—the first found in the meditative pace of walking, the second forged by living side by side and depending on one another. Invariably conversation turns toward the beasts that make all of this possible.

They are formidable animals, both in size and personality. A camel resting on its haunches is still tall enough to look a person in the eye. Each has distinct moods and dislikes. Traveling with more than a dozen of these immense animals is like taking a slow train. The creaking of the saddles, the swaying of loads, the shuffling pace of the caravan strung out into a graceful line, soothe even the most nervous in our group.

Day after day we walked alongside our camels, across patches of desert filled with stones and boulders known as gibbers, following dried-up rivers of sand, weaving through acacia woodlands, always steering northeast. As the camels settled down, we also had the option to ride some of them. Initially there weren't many takers, perhaps because everyone got a taste of what a camel rodeo would look like early on in our trip: I had been riding the lead beast known as Bliss when she suddenly broke into a full "bucking bronco" gallop with me holding on for all I was worth. A camel's normal pace may be a saunter, but as I learned firsthand, it is capable of bursts of speed. Bliss stopped only after the rest of the string acted as an anchor.

Fortunately, Bliss' sudden tempest turned out to be the only such incident on the entire trek. Usually, the camels' gait was so comfortable that it would have been possible to read a book, although the gentle rocking-chair motion took some getting used to. One early explorer routinely sketched and took instrument readings while perched atop a moving camel. In fact, camels adapt so easily to the extra weight of a human that no girths or straps are necessary once the saddle is worn in. Most people in my group grew saddlesore and wanted to get off after riding for two hours, but I fashioned an air cushion from an empty wine bladder and contentedly rode much of the day. In a desert flat as the sea, the saddle became a kind of crow's nest, and I eagerly climbed aboard each morning, keeping watch for emu, kangaroos and wedge-tailed eagles, which frequently conducted impressive aerobatic maneuvers overhead.

A month spent at such close quarters brought me a profound admiration for dromedaries. Everything about camels is designed to make them perfectly at home in one of the most inhospitable places on earth: their relaxed breathing and slow metabolism; their dusty-carpet fur that insulates against heat; their nostrils that can be closed during sandstorms; the humps that store

On most extended trips, trekkers walk beside the train at a leisurely gait, riding a camel only a couple of hours each day on average. Dromedaries carry 500 pounds with ease.

fat and shield the internal organs against fierce overhead sun; the cushioned two-toed footpads that splay out for better purchase in soft sand.

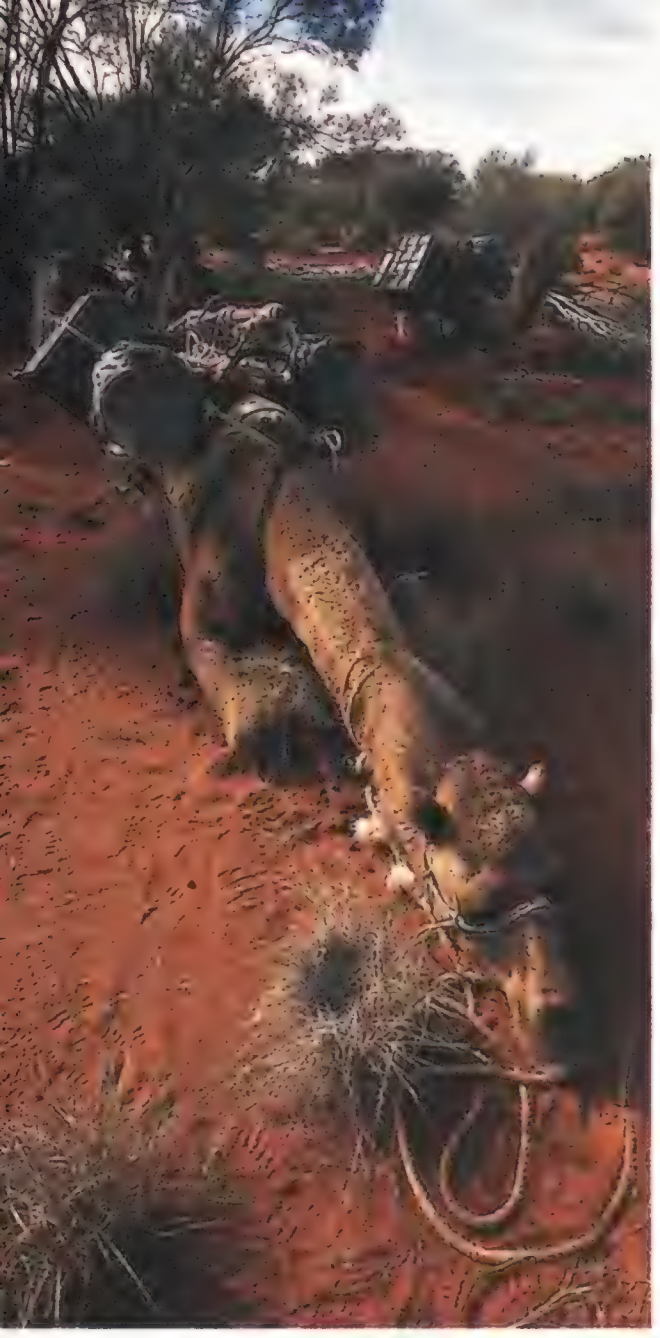
If the food is succulent and the air cool, camels can travel up to 600 miles without drinking at all, conserving and recycling what moisture they draw from plants. They can, for example, regulate their body temperature by as much as 12 degrees Fahrenheit, minimizing perspiration and conserving body fluids. The moisture in their outgoing breath passes through bones in the nostrils, where it is condensed and recycled. In the camel's water management, even a runny nose is not a leaking tap: a cleft in the upper lip channels the moisture back into the animal's mouth.

In extremely dry conditions they can go without water for weeks, and lose up to 40 percent of their weight, without hurting vital body functions. They can also rehydrate with astonishing efficiency. A thirsty camel can gulp up to 21 gallons in three minutes—an astonishing feat that would kill any other mammal. Tales of remarkable camel endurance fill early Australian history. In the 1870s Ernest Giles twice traveled between Port Augusta and Perth, and his journey included a stretch of 325 miles where his camels had only a bucketful of water each over a 17-day period. Equally impressive was the story of David Lindsay, who made a 4,000-mile trek in the early 1890s during a severe drought. On one leg of that odyssey, he covered 510 miles in 34 days, even though he was only able to give each camel four gallons of water. On our modest trek, the camels never even considered a drink when we passed several watering places. Some time ago, however, during a particularly dry crossing of the Simpson Desert, the camels did develop a thirst, and scavenged around the camp kitchen for

dishwashing water and moist food scraps. Once, a camel named Nugget stole, upturned and drank a bottle of mild detergent. The cameleers like to tell how he "burped" impressive soap bubbles for the next couple of hours.

As the need for camels grew in colonial Australia, their importation and breeding became a brisk business. Nearly all camels were of the single-humped variety, because the two-humped Bactrians—natives of the cold Central Asian highlands—were maladapted to long periods of heat in the Australian interior. And since no one knew how to manage the volatile beasts, the entrepreneurs also brought in animal handlers, men from what is now northern India and Pakistan who became known as the Afghans, and later simply as Ghans.

Driven by Ghans, containing up to three dozen animals, and often traveling in convoys, the camel trains hauled supplies and materials to remote mines and sheep stations, returning with loads of wool and ore. They carried coils of wire for the Overland Telegraph Line that ran from Darwin to Adelaide, and sleepers for the Transcontinental Railway. The first piano arrived in Alice Springs lashed to the hump of a camel. Every so often on our trek, we would cross one of the old train lines, now a barely discernible trough cutting through the hard red soil of the desert. At their peak, there were between 10,000 and 20,000 dromedaries working the desert trails of Australia. They carried mail, water pipes and gasoline drums, pulled buggies, coaches and plows. But then came the motorcars, and later the monstrous trucks known as road trains, and camel muscles were instantly superseded by internal combustion horsepower. What took a fortnight by camel train could be done by truck in a day. For a while the dromedaries still plied the



Bliss gives her 1,100-pound frame a rest during the hour break for lunch.

more remote and roadless quarters—outback policemen patrolled their beats on camelback well into the 1930s—but the end of their usefulness was coming fast. The Ghans, unemployed and unable to feed their beasts, led them out of town, into the outback, and set them free.

They thrived and multiplied, doubling their population every six to ten years. A recent estimate places the number of feral dromedaries in Australia today as high as 400,000. Not seen in the wild anywhere else for the past 2,000 years, the camel has taken to the Australian outback with a vengeance. Though a Bedouin might regard this as a godsend, it adds up to one big nuisance for modern Australians. Spreading right across the country in their usual nomadic fashion, camels bulldozed cattle fences, threatening to destroy the outback agricultural economy. Farmers declared war on camels, often shooting them on sight. The once unsurpassed beast of burden had become simply a beast and a burden. Now this perception is changing as several governmental groups and private industry associations are working toward developing camels into a sustainable livestock industry. Many Australians find camel meat lean and tasty. Camel wool and leather have found markets in the craft and fashion industries.

As we plodded in step with our beasts, foot after foot, from one camp to the next, our own burden began to lessen. While fresh vegetables and most of the wine had disappeared, so too had our fear of camels. By now, with the exception of the teacher who still distrusted the unruly brutes, we were all converted camelphiles. We could talk about camels with authority for hours, elaborating on their personalities, their moods, and the idiosyncrasies of their gait and behavior. Some of us had even learned the high arcana of camel handling, which involves the especially difficult task of changing the nose rope. The beasts loathe this procedure and each time reveal all of their 34 canines, incisors and molars in a fearsome display. At times, when a camel grew particularly unhappy—a sudden mood change could be prompted by an insignificant poke in the ribs with a saddle stick or even a displeasing cloud formation—we let the professionals step in. On several occasions, I watched from a distance as a camel defiantly raised its head and cleanly lifted a cameleer of 18 years' experience off the ground like an underweight bell-ringer. Make no mistake, camels don't like their work, but oddly, somehow they don't seem to mind it either.

"They are so strong that they could walk out on you, loads or not, at any time, and there is absolutely nothing you can do," Andrew Harper explained. "But they are willing to do the work, as long as they get time off to feed and hang out with the other camels. Essentially, we are tapping into their natural behavior. They are nomadic herd animals and usually travel in a string. All you have to do is to befriend them, then turn yourself into a lead camel and direct the string where you want to go."

We could talk about camels with authority for hours, elaborating on their personalities, moods and idiosyncrasies.

It's the befriending that takes the most time and effort. At first, it's like flirting: the human is timid and shy, the camel aloof. After a while the realization sinks in that their lashing attacks and tooth-baring displays are mostly bluffs. Their endless moans, groans and sighs during loading time, varying from the sound of a drain being unclogged to the idling of a hot rod jet boat, begin to seem a modest price to pay for the large, ungainly loads they carry day after day.

The payoff for being patient with them comes unannounced one evening when I felt a gentle nudge from behind, and turned around to find a gawky

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TODAY TOMORROW **TOYOTA**

I felt a gentle nudge and turned around to find a gawky face nuzzling me for an interlude of smooching.

face nuzzling me for an interlude of smooching. In short order the camel lay down on its knees, its neck stretched out in pleasure, its puckered lips laid out on the sand. I'm certain that it would readily roll over to have its belly scratched for hours were it not for that awkward hump on its back.

The only camel that avoided us to the end was the old brawler Rip, who had given me so much difficulty early in the trip. I eventually heard her sad story and how she earned her name. Several years earlier, with a violent pull of a rope, a moronic handler had torn the peg out of Rip's nose. Because camels regurgitate and grind their food, it is impossible to place a bit in their mouth like a horse. As a result, a line is run through a nosepeg. The incident had scarred her face as well as her opinion about the human race in general. After I stood my ground during several of her mock attacks, Rip stopped pretending that she was about to tear me to pieces. I woke up one night to a teeth-grinding noise nearby and found her squatting only a few yards from my swag, chewing on the day's pickings. We'd never be friends, I knew, but we had established a degree of tolerance.

Our group of fellow travelers, drawn together each night by the campfire, quickly grew accustomed to the reassuring company of Chewy, Bliss, Pam, Moira and the rest of our humpbacks, who calmly nibbled succulents in the flickering shadows. Somehow their presence added a warming sense of security. They brought us here and would take us out at their own pace. This was fine because we had now adopted this nomadic adagio rhythm as our own. One day, we saw a road train tearing along the far horizon, trailing a plume of yellow dust, and the machine seemed as distant as an overhead jetliner. The camels had indeed transported us out of our supersonic lifestyle and into a place and time where nothing else mattered except water, firewood and the day's march.

Derek Grzelewski grew so used to the camels' leisurely pace that he now has trouble meeting deadlines. Mark S. Wexler last photographed New Mexican churches for this magazine.

Got an itch to saddle a hairy, 1,500-pound creature, then shout "hoosh" and head out into the red-rock desert wilderness of Australia?

STEADY, MATE. Most people satisfy their urge to nuzzle a dromedary on the short camel rides that many Australian outfitters offer on the beaches near Cairns or Broome, or on Kangaroo Island. But if you're the daring sort who wants to speak "camel" and experience the Australia few people see, there are a handful of camel-trekking outfitters that could be your ticket. Outback Camel Company, run by Andrew Harper, offers six-day treks ($600), 12-day treks ($900) and more challenging 27-day expeditions ($2,200) leaving out of Alice Springs, Adelaide and Brisbane (P.O. Box 132, Fortitude Valley, Queensland 4006; phone: 61-7-3854-1022; www.outbackcamel.com.au).

"THESE ARE NOT the trips," warns our author Derek Grzelewski, "for those who want to go somewhere and get there fast." Camels have one speed only, he reports, "a relaxed shuffle." In other words, there's plenty of time to watch for thorny devils—eight-inch lizards that look as if they'd grown hundreds of rose thorns—or admire the bloodred, fairy-like blossoms of the Sturt's desert pea. Few places offer better stargazing, so bring along a Southern Hemisphere sky chart.

TRIPS OFTEN INVOLVE up to 18 camels and a dozen trekkers with a 3- to 4-member crew. No trails or roads mark the desert, so each journey covers new ground. Camels don't do all the work: trekkers must walk an average of five to eight miles a day, sleep in "swags" under the stars, cook in camp-ovens and woks on open fires and go the distance without showers or toilets. For an insight on really roughing it, check out *Cooper's Creek* by Alan Moorhead, the astounding tale of the Burke and Wills expedition and their disastrous attempt in 1860 and 1861 to cross the continent from south to north (with camels, of course).

A FEW DAYS into a camel-trekking trip, you'll be chatting with your ungainly mount and feeding it orange peels. We've heard that many people want to buy a camel by trip's end. Our advice: leave the camels in Australia...and bring extra film.

FOR TRAVEL TIPS, stories, photographs and much more on camels and journeying to Australia, click on our new Website, **smithsonianmag.com/journeys**. There you will also:

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ZORA NEALE HURSTON

out of obscurity

IN AN UPSCALE MIAMI NEIGHBORHOOD IN THE winter of 1950, the matron of a fashionable mansion sat in her living room leisurely paging through a recent issue of the *Saturday Evening Post*. Her new maid, a plump, pleasant and talkative black woman, was dusting the bookshelves in the library. As the lady of the house flipped through the magazine, her eyes fell on a fiction piece titled "The Conscience of the Court," accompanied by an illustration of a white-haired judge and a tearful young black woman in the witness chair. Then she noticed the byline on the story: Zora Neale Hurston—her "girl"! A long, tense interrogation ensued in an attempt to unravel the mystery.

BOTH PRAISED AND SCORNED IN HER DAY, THIS FLAMBOYANT, ENIGMATIC WRITER OF THE HARLEM RENAISSANCE IS ATTRACTING NEW GENERATIONS OF LITERARY FANS

BY MARIAN SMITH HOLMES

JUST SEVEN YEARS EARLIER, THE "maid" had won an award for her autobiography. She was a graduate of Barnard, an anthropologist and the author of four novels and two folklore anthologies, as well as many short stories. It wasn't long before a local newspaper exposed the author's plight. "Famous Negro Author Working as Maid Here Just 'To Live a Little'" announced the headline in the *Miami Herald*. In the article, Hurston, characteristically proud, denied that indigence had forced her to take the $30-a-week job. She went on to say she was "written out" and just wanted to work with her hands for a while, and finally, that she was doing research in hopes of starting a national magazine about domestics.

Hurston's muddled explanation of why she was wielding a dust cloth instead of a pen was not unusual. Since she burst onto the New York literary scene in the 1920s with her image-rich prose, quick wit and brash independence, her own story had remained, as one scholar put it, "half in shadow." Biographic details such as where she was born and when or whom she married, are vague and contradictory. Hurston was a philosophical conundrum as well. Fiercely proud of black culture, she collected hundreds of folktales and focused her studies on "the Negro farthest down," a passion irksome to the 1920s Harlem literati striving to prove intellectual parity with whites. Hurston glossed over inequities between the races, refusing to be part of "the sobbing school of Negrohood," and later even opposed the landmark 1954 Supreme Court desegregation decision.

She was high-spirited, intelligent, funny and irreverent. Her colorful stories made her the life of a party; she smoked in public and wore outlandish hats and African head wraps—a "macaw of brilliant plumage" is how one colleague remembered her. When she drove alone into some of the roughest sawmill camps in Florida to do research, she packed a pistol. Today, Hurston's readers, who are usually acquainted with her through her popular novel *Their Eyes Were Watching God*, a story of a woman's quest for passion and self-expression, classify her as a pioneering feminist. Indeed, Hurston did abandon at least two lovers to pursue her own career.

Her career rise and subsequent fall are perplexing. How does a small-town black woman, arriving in New York City in 1925 with a peripatetic education and $1.50 in her pocket, gain entry to the best social circles, become a research anthropologist and garner the praise of the literary world? Her first novel, called "vital and original" by the *New York Times*, was a Book-of-the-Month Club selection. More books and accolades followed, but by the late 1940s she was in a precipitous fall—going from radio talk shows, honorary degrees and the cover of the *Saturday Review* to working as a maid, welfare and her final resting place in 1960 in an unmarked grave.

By 1970 when I was a college student studying black writers such as Richard Wright and Langston Hughes —Hurston's contemporaries—she had been all but forgotten, at best a foot-

An independent woman in both thought and action, Hurston frequently traveled alone and routinely ignored the social mores of her times.

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note in an African-American literature class. Most of her works were out of print. In 1973 novelist Alice Walker, intrigued by rumors about Hurston, located her grave, wrote a magazine article about the pilgrimage, and, in doing so, sparked a new generation's interest in the writer.

Since then, the readership has been growing. Hurston's name still elicits some perplexed stares, but she has a devoted following and is on high school and university reading lists around the country. *Their Eyes Were Watching God* sold fewer than 5,000 copies when it was published in 1937; in the past decade alone it has sold more than a million. A book of Hurston's letters is in the works, as are a new biography and a never-before-published collection of folktales (recently discovered in the Smithsonian Institution's anthropological archives). She is the subject of conferences and scholarly papers, and every January the tiny town of Eatonville, Florida, commemorates its most famous daughter with a week of seminars, workshops and events.

Even though Hurston proudly claimed Eatonville as her birthplace, family records indicate that she was probably born in Alabama in 1891 and that the family moved to central Florida when she was an infant. Hurston was ahead of her time in so many ways, and that is apparently true of her birth as well. The story goes that she rushed squalling into the world before the midwife could arrive, surprising her mother, who was alone with her small children. Moments after the birth a white man bringing the family part of his butchered hog happened by. Finding the baby and mother, he cut the umbilical cord with his barlow knife and placed the newborn in her mother's arms.

As the nation's first incorporated, self-governing black town, Hurston's beloved Eatonville was a symbol of independence and daring. In the late

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Just a few miles from Disney World, the tiny town of Eatonville, Florida, has acquired a modest tourist status of its own since the resurgence of interest in Hurston.

1800s, the swampy forestland bordering beautiful Lake Maitland, just north of Orlando, became the site of stately homes, opulent carriages and well-heeled white families. Blacks flocked to the area, too, finding work as domestics and settling nearby in hastily constructed shacks. After a few years, Joe Clarke, an African-American, came up with the bold notion to start a pure Negro town with its own charter, mayor and council. With the support of wealthy whites in the area, a one-square-mile tract of land west of Maitland was secured, and in August of 1887, Eatonville received its charter.

This sanguine hamlet, free of racial confrontation and discrimination, left its indelible mark on Hurston and may explain her unshakable self-esteem and black pride.

Hurston fondly recalled Eatonville as "a city of five lakes, three croquet courts, three hundred brown skins, three hundred good swimmers, plenty guavas, two schools, and no jail house." Today her fans are drawn to Eatonville, now a historic landmark, in celebration and in search of the author. And I am no different. One hot July day I walked the historic trail and lingered awhile at the empty lot where the Hurston home once stood.

Hurston grew up in an eight-room house, surrounded by a five-acre garden thick with citrus trees. One of eight children, she thrived on boisterous play. Her mother encouraged her to set high goals and avoid becoming a "mealy mouthed ragdoll." But Hurston's father, a preacher, tenant farmer and the third mayor of Eatonville, ever wary of racism, warned her: "It did not do for Negroes to have too much spirit."

Full of curiosity as a child, Zora would climb the chinaberry tree in her yard, look toward the horizon and imagine what lay beyond Eatonville. Sometimes perched on the gatepost in front of her house, which sat on a dusty, unpaved thoroughfare, she brazenly hailed carriages en route to Orlando. She would beg to go a "piece of the way," and more often than not the amused white travelers consented, and little Zora was rewarded with a glimpse into their world, at least for a half mile or so.

Joe Clarke's general store was across the road from the Hurston house. "Men sat around the store on boxes and benches and passed this

LOUISE FRANKLIN

world and the next one through their mouths," Hurston later wrote. As a child she was banned from hanging around the store porch, but always dragged her feet when on an errand for sugar or coffee, straining to hear the "lyin'" contests the men engaged in—besting each other in the telling of folktales. These tall stories usually involved God, the devil, preachers, a bestiary of animals, witches and "hants" (spirits) and would later become the foundation for Hurston's *Mules and Men,* still considered one of the most authentic collections of African-American folktales.

Hurston's idyllic childhood was abruptly halted when her mother died and her father sent her, at about age 9 or 14 (Hurston constantly lied about her age) to boarding school in Jacksonville, and then promptly remarried. Influenced by his wife, Papa Hurston soon cut off funds for school. Practically abandoned, the young girl was shifted among relatives and friends for several years. She took various domestic jobs and attended school only sporadically but pined for the classroom.

She once retrieved a tattered volume of Milton's works from a rubbish pile and spent days savoring *Paradise Lost* instead of looking for work. Years later in her autobiography, she reflected on those times: "There is something about poverty that smells like death. Dead dreams dropping off the heart like leaves in a dry season and rotting around the feet."

In her late teens, Hurston began working as a lady's maid for an actress in a traveling Gilbert and Sullivan troupe. The position would become her window on the world for a year and a half, a ticket to the places she had yearned for from the gatepost. Traveling up the East Coast with the company, Hurston grew fond of opera and classical music. The tenor, a Harvard man, lent her books, and she blossomed in the company of the witty, madcap actors. When her employer left the troupe in Baltimore to get married, Hurston found a job as a waitress and enrolled in night school. Inspired one evening by a teacher's reading of "Kubla Khan," she vowed to step up her efforts to get an education. After hearing Coleridge, "I was not of the work-a-day-world for days after," she wrote later. "This was my world . . . and I shall be in it . . . if it's the last thing I do. . . . "

She enrolled in the high school division of what is now Morgan State University. After graduating two years later, she entered Howard University, "the Negro Harvard," in Washington, D.C. where she rubbed shoulders with the black elite. A "rough edged diamond" was how one professor described Hurston, who engaged in marathon literary discussions and was admitted to the Stylus, a select campus literary club. Her first story appeared in the group's magazine in May 1921.

BUT EARNING A DEGREE WAS A slow, intermittent process. Working long hours as a manicurist in a whites-only barbershop, Hurston was able to complete only a year and a half of college courses in five years. By 1925, she had run out of money for tuition, but she had written a few more short stories and a play. Her efforts were encouraged by Charles Johnson, editor of *Opportunity,* a New York-based magazine that introduced talented black writers to the public. Johnson, Alain Locke (a Harvard- and Oxford-educated professor at Howard) and other African-American scholars were assiduously creating a cultural and intellectual movement that would later be labeled the Harlem Renaissance. Rejecting second-class status, they promoted an assertive, refined image they called the New Negro. With literary expression being a major emphasis of the renaissance, more black writers were published in the 1920s than in any other decade before the 1960s. It was in this

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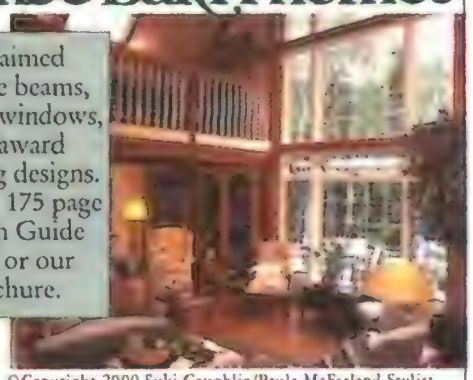

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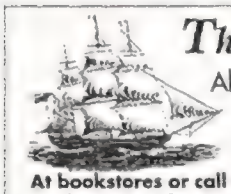

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heady atmosphere that Hurston decided to seek her fortune in New York.

She arrived without money or employment, but within months good luck had befallen her. At an *Opportunity* awards dinner in May 1925, she won second prizes for a short story and a play, *Color Struck*, as 300 of New York's literati looked on.

Suddenly the little gatepost dreamer from Eatonville was a rising star. Best-selling novelist Fannie Hurst, a contest judge, offered her a job as her live-in secretary, even though Hurston's typing was dreadful. Annie Nathan Meyer, novelist and a founder of Barnard College, arranged a scholarship for her. The only black at the college, Hurston later insisted she had "no lurid tales to tell of race discrimination." On the contrary, the "Social Register crowd at Barnard soon took me up." She became a frequent guest at writer Carl Van Vechten's renowned interracial parties. "It was a time when the Negro was in vogue," noted one poet of the era.

Hurston made the rounds in Harlem circles, too, meeting poets as well as porters at the crowded soirees

Hurston threw herself into the study of West Indian culture during a 1937 fellowship but still found time to write the novel that would become her most popular work.

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of hair-care heiress A'Lelia Walker and the power brokers of the NAACP and the Urban League. What Hurston lacked in New York sophistication, she made up for with boisterous wit, telling stories of life among the "mullet-headed, mule-eared, wall-eyed, hog-nosed, gator-faced" characters of Eatonville. "I am just running wild in every direction, trying to see everything at once," she wrote to a friend from New York.

NO BEHAVIOR WAS TOO OUTRAgeous, whether wearing trousers or smoking Pall Malls in public or measuring the heads of strangers on a street corner to disprove the belief that blacks' skulls were too small to accommodate a normal-size brain. Strutting dramatically into a reception after winning second place for her play, Hurston flung her scarf over her shoulder, and shouted out the title, "Calaaaah Struuuck."

While she was studying anthropology at Barnard from 1925 to 1928, she would often travel to Harlem to hang out with a fringe clique of bohemian writers, artists and musicians, among them the poet Langston Hughes. They collaborated on projects, but also entertained themselves by telling tall tales, singing rousing spirituals and dancing what Hurston called "native" dances. They shocked Renaissance fathers, whom Hurston accused of emulating the white bourgeois, by calling themselves the Niggerati. Articulate talented blacks had a responsibility to uplift the race, and raise the social conscience, the leaders contended. But Hurston resisted such appeals. She was "thoroughly sick" of the "race problem"; she wanted to write a "novel and not a treatise on sociology."

Her novel would not come for several years. Though she turned out many short stories during this time, she immersed herself in a new endeavor, anthropology, which allowed her to apply a scientific per-

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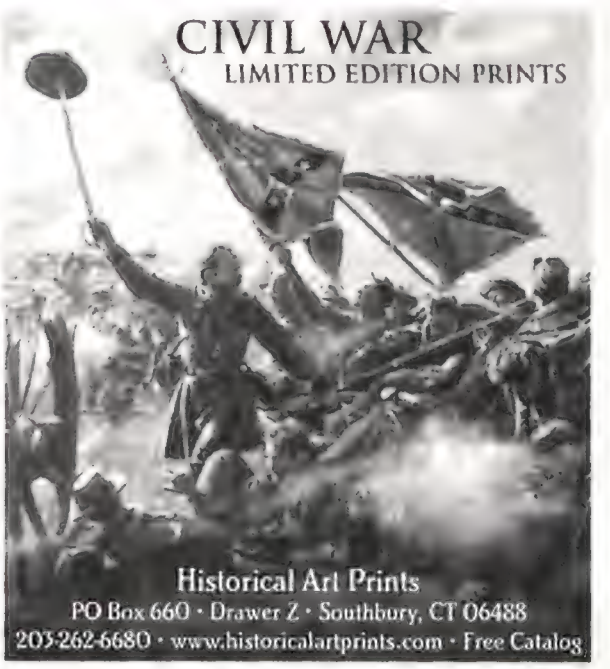
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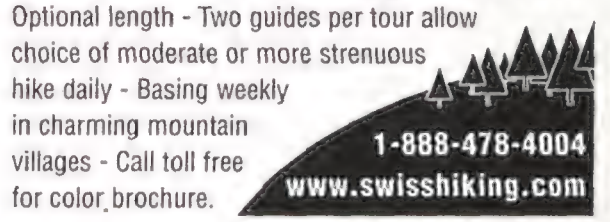
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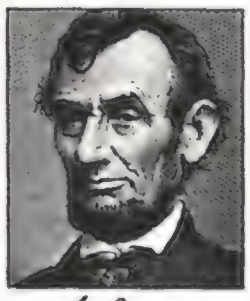

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spective to the rural folk culture she loved. Under the tutelage of preeminent anthropologist Franz Boas and supported by a $1,400 fellowship, she happily headed back to Florida to record the traditional stories, songs, games and customs of Negro folklore.

Her first fieldwork was disappointing, she admitted in her autobiography. "I dwelt in marble halls," a major obstacle in relating to common folk. "I had to go back, dress as they did, talk as they did, live their life," she told a reporter. But while on that first trip, Hurston apparently plagiarized some of her research, a transgression that would go undetected until a dozen years after her death.

Notwithstanding such shortcuts, her six months in the field were indeed a busy time. In May 1927 she married medical student Herbert Sheen, her longtime fiancé. By August, the marriage was failing. Even on her wedding day, Hurston was racked with doubt. "Who had canceled the well-advertised tour of the moon?" she wondered. "Somebody had turned a hose on the sun." And a few months later she told a fellow writer, "Herbert holds me back."

RETURNING TO NEW YORK, Hurston met Charlotte Osgood Mason, a generous, elderly patron of black artists. Mason was interested in gathering material on groups she called "primitives," such as American Indians or blacks. Hurston's folksy stories, of course, charmed her. Mason sat "at the table over capon, caviar and gleaming silver, eager to hear every word on every phase of life on a saw-mill 'job,'" Hurston recalled. "I must tell the tales, sing the songs, do the dances, and report the raucous sayings and doings. . . ."

Mason's relationship with her protégée was curious to say the least. She promised Hurston a motion picture camera, a car and a $200-a-month stipend to collect folklore in the South. Hurston, in return, signed a contract that gave Mason exclusive rights to everything she collected, wrote the old woman endearing letters and called her "Godmother." In one of her letters to Mason she gushed, "I have taken form from the breath of your mouth. From the vapor of your soul am I made to be."

Whether sincere or manipulative, Hurston's correspondence shows that she was a master at flattering her patrons. In some two dozen letters to Annie Nathan Meyer, she often fretted about her lack of money and, on occasion, referred to Meyer as a "magnificent princess" and herself as "your little pickaninny."

Flush with Mason's largesse, Hurston was soon frequenting the juke joints and the lumber and turpentine work camps of Polk County, Florida, in pursuit of stories, jokes, music, dances and voodoo practices of African-American folk culture. Carrying a pearl-handled revolver and passing herself off as a bootlegger's woman on the run, she lived among the people and collected their stories.

She soon expanded her field to New Orleans and the Bahamas, fertile ground for music and voodoo. At times her research was hazardous. She endured bedbugs, and once narrowly escaped a jealous knife-wielding woman. In the name of research, she slit her finger for a blood-brother rite and lay naked for three days with her belly pressed to a rattlesnake skin. But the rich material she was collecting was well worth it, she raved in letters to friends. Eventually her research, after Mason's edit, would be published as *Mules and Men* in 1935.

While seeking a publisher for *Mules*, Hurston returned to fiction writing and theater. After a critically acclaimed but financially ruinous attempt on Broadway with a "true Negro" musical in 1931, she returned to Florida, a refuge she would seek often during her lifetime.

Resettled in Eatonville, she planted a garden and wrote some short sto-

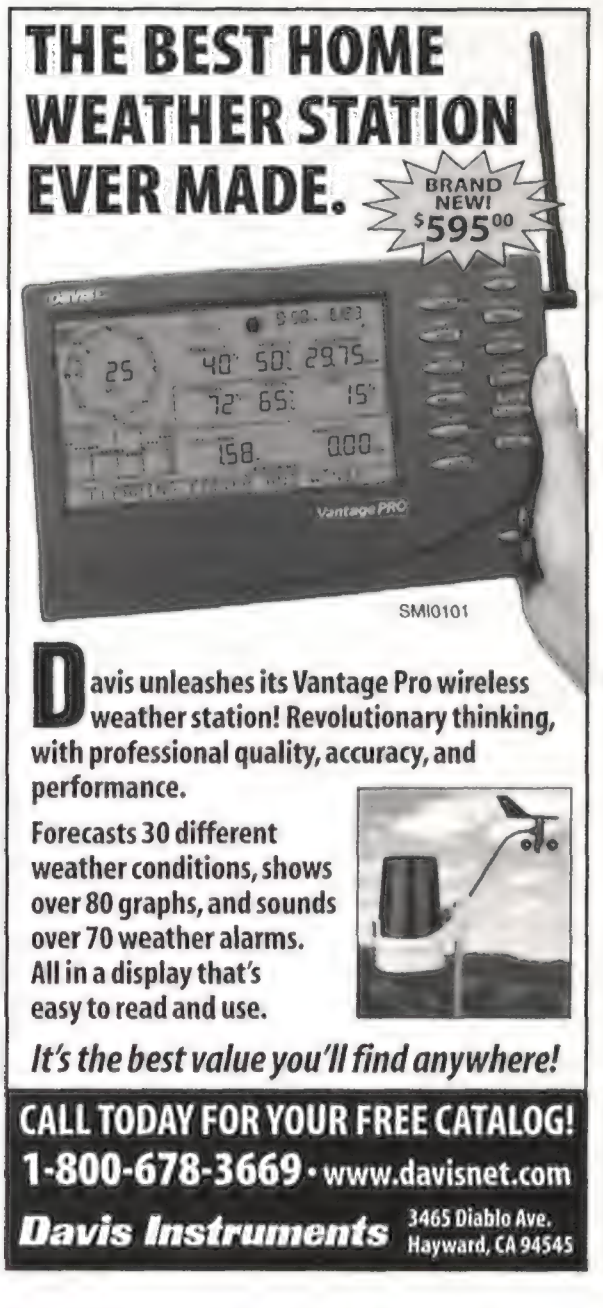
As part of her effort to preserve the folk traditions she loved as a child, Hurston joined in the games and play of some Eatonville youngsters during a research trip in 1935.

ries, one of which caught the attention of Lippincott publishers. When they inquired if she was working on a novel, she lied that she was. In three months, however, she made good on the fabrication. Living on $2 a week and writing in longhand on a rickety card table, she produced *Jonah's Gourd Vine*. She borrowed money to have it typed and mailed. Just hours before an acceptance telegram arrived from Lippincott, Hurston was evicted from her rented house for owing $18 in back rent.

Jonah's Gourd Vine, the story of the moral struggle of a philandering minister, is clearly based on the marriage of Hurston's parents. It was praised by the press, but some black publications took issue with Hurston's heavy use of folklore. Though *Jonah* was a Book-of-the-Month Club selection, Hurston's financial gain was essentially the $200 advance. Needing steady income, she taught drama at a college in Daytona Beach and at the WPA Federal Theatre Project, but she rarely stayed long at any job. Awarded a Rosenwald Fellowship to earn a doctorate in anthropology, she grew restless and failed to attend classes. "Her primary interest in folk materials," Robert Hemenway theorizes in his invaluable work, *Zora Neale Hurston: A Literary Biography,* was now only "as a source for journalism, drama and fiction." Academia was "alien" to her artistic, erratic temperament.

With the publication of *Mules and Men*, black intellectuals' criticism of Hurston's pastoral view of blacks and her benign treatment of racial issues became acute and would dog her the rest of her life. White reviewers found the collection of stories entertaining, commenting that they allowed a glimpse of blacks being "natural." But poet and Howard University professor Sterling Brown attacked the "socially unconscious" and "easy-going and carefree" image presented in *Mules*. Bitterness, injustice and economic hardships were nearly nonexistent in the book, he charged. Some critics even objected to the title, a metaphor, they said, that equated blacks with servile beasts of burden.

Despite the mixed response to *Mules,* Hurston was soon awarded a Guggenheim Fellowship and set off to the Caribbean to study voodoo firsthand. She participated in rituals, befriended medicine men and even went on a wild boar hunt, but late at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In a late 1950s photograph salvaged from a fire that destroyed some of Hurston's manuscripts after her death, the author, center, visited with Florida neighbors.

night she poured out her heart, writing what became her second novel.

Written in Haiti in seven weeks, *Their Eyes Were Watching God*, though laced with folksy tales, is ultimately a feminist love story based loosely on an affair Hurston had with a younger man. The book, published in 1937, opens with the heroine, Janie, returning to Eatonville and recounting her journey of self-discovery to neighbor women. When the story is over, one woman exclaims, "Lawd! Ah done growed ten feet higher from jus' listenin' tuh you, Janie." In a heart-to-heart talk with young Janie, her grandmother, who was born in slavery, wistfully tells her, "Ah wanted to preach a great sermon about colored women sittin' on high, but they wasn't no pulpit for me."

Critics praised the rich figurative language of a story well-told, but once again the harshest words came from black intellectuals. Former mentor Alain Locke complained that the folklore detracted from the story line. "Minstrel" images, fumed Richard Wright; the characters "swing like a pendulum eternally in that safe and narrow orbit in which America likes to see the Negro live. . . ." As the Renaissance writers heralded a new era of realistic fiction, Hurston's aesthetic voice would be lost in the clamor.

The reviews of her next two books—one on voodoo and a novel about Moses—were mixed. Neither matched the quality of her earlier work. While working as an editor at the Federal Writers' Project in Florida, Hurston met a man at least 15 years her junior and married him in 1939. They parted after a few months, acrimonious accusations flying.

Hurston never mentions that husband in her autobiography, which she wrote a year later at the urging of her publisher. *Dust Tracks on a Road* is less than candid for such omissions, and some critics, then and now, take issue with its palatable treatment of race. Hurston assures readers that she has no "race prejudice" and spends many pages chastising those who dwell on the subject. It is "nothing but futility" to look back on the "dark days of slavery," she writes. In 1943 the book won the *Saturday Review*'s award for race relations, and among whites Hurston became a sought-after authority on the issue.

The original manuscript of her autobiography, and her interviews

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with the black press, revealed a tougher stance on racial inequality than she expressed to whites. It would be a "good thing," she wrote in the first version of *Dust Tracks*, "for the Anglo-Saxon to get the idea out of his head that everyone owes him something just for being blonde." Later, however, when she told a white newspaper that "the Jim Crow system works," the NAACP denounced her. She rushed to deny the statement, but more and more she found herself walking a thin line in her attempts to maintain her individuality and satisfy two audiences.

SEEKING SOLITUDE, HURSTON bought a houseboat and spent the next few years plying the waterways around Daytona Beach. She continued to write, mainly essays, but produced *Seraph on the Suwanee*, a novel about poor whites. In New York for its publication in 1948, Hurston was hit with a scandal that would shake her to her core. A mentally disturbed 10-year-old boy accused her of sexual molestation. Eventually cleared of all charges, Hurston retreated to Florida. Two years later she made headlines again—as a maid.

Perpetually short of funds, emotionally battered and suffering intestinal problems, Hurston still managed to find a level of serenity in Florida. At times she worked as a librarian, a substitute teacher and a newspaper freelancer. She moved frequently, but whatever the lodging, she made it home by planting a garden, and she became very attached to her dog, Spot. When her typewriter wasn't in hock, she turned to her passion—writing, even though rejection slips piled up.

In the 1950s Hurston's racial conservatism stood out starkly as segregation barriers began to erode. She supported Republican candidates, including right-wing Robert Taft, she publicly endorsed a segregationist senator, and in a letter to a Florida newspaper she attacked the Supreme

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The birth date on the headstone Alice Walker placed on Hurston's grave in 1973 is off by a decade; scholars later discovered the author intentionally shaved years off her age.

Court's desegregation ruling. It insulted blacks and their institutions, Hurston said, by implying that black children could learn only if sitting next to whites. She bristled at the image of the victimized black, repudiating what she called the "tragedy of color" philosophy. Ultimately, Hurston's politics can't be neatly pigeonholed. One scholar sums her up as a "belligerent individualist who was decidedly unpredictable."

AFTER SUFFERING A STROKE IN 1959, Hurston was forced to move to the St. Lucie County Welfare Home in Fort Pierce, Florida. She died on January 28, 1960. A service and burial were delayed for more than a week while friends raised money to pay for the funeral.

When I went to Florida to do research on Hurston, I met one of the funeral directors who assisted at her service 41 years ago. She didn't die forgotten, Curtis Johnson assured me as we walked through a small carpeted parlor. "I don't remember any family, but we had chairs lined all the way out to the sidewalk," he said, stepping onto the porch and pointing beyond the front yard. "More than a hundred people, blacks and whites."

Johnson is 75, stocky, with cropped gray hair and the air of a gentleman. "She had a circle of friends, and me being a young man I wasn't in her circle," he said of Hurston. "She wore a big hat and wasn't always tidy, but she had something stored in her head for everybody. She could cite a piece of poetry or something that would be just right for the person."

He asked if I wanted to see her grave. I climbed into his truck and in minutes we arrived at a small clearing just beyond a block of pastel-colored houses. The grass hadn't been cut for a while, but Hurston's grave is easy to find since Alice Walker marked it with a headstone in 1973. I noticed a few pennies scattered on the vault and inquired. Johnson smiled and with a twinkle in his eye explained, "That's a superstition, to throw coins on the gravesite, so the dead won't be broke." As I thought about Hurston's persistent money woes, Johnson added, "She was down on her sawbuck, you know."

It was just the sort of folklore and expression that might have compelled Zora Neale Hurston to take out her notebook.

Marian Smith Holmes, an associate editor, says listening to a recording of Hurston from a 1943 radio talk show was pure delight.

N.Y. NATHIRI

A Note from the Secretary [p. 8]

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THE LAST PAGE

Funny Money

BY CHRIS WANJEK

I VENTURED FROM THE SUBURBS ACROSS THE BORDER into the big city the other day, unaware of any need to stop at the foreign currency exchange. I realized my mistake as soon as I attempted to pay for a Tastykake cherry pie at a convenience store with the new Sacagawea dollar coin.

"What's this?" the teenage clerk asked ever so cheerfully, not at all associating the bright golden object in her hand with cold hard cash. "It's the new dollar coin," I explained. "My bank just started carrying them, so I bought a whole roll."

"Oh," she said then, handing me back the coin. "Seventy-nine cents please." Not quite catching on to the Abbott and Costello skit that was just about to unfold, I handed her the dollar coin again. "Yes, it's very pretty," she said, a bit louder and slower this time, perhaps under the impression that I was a local crackpot captivated by small, shiny objects. "Seventy-nine cents, please."

"Right, and I'm giving you a dollar."

"I can't take this," the clerk said earnestly.

"You have to take it," I retorted. "It's U.S. currency. One dollar. It says it right on the coin."

She called over a coworker. The coworker had never heard of the new currency either. "It's the new dollar coin to replace the Susan Bs," I said. "That's Sacagawea. She guided Lewis and Clark across the wilderness."

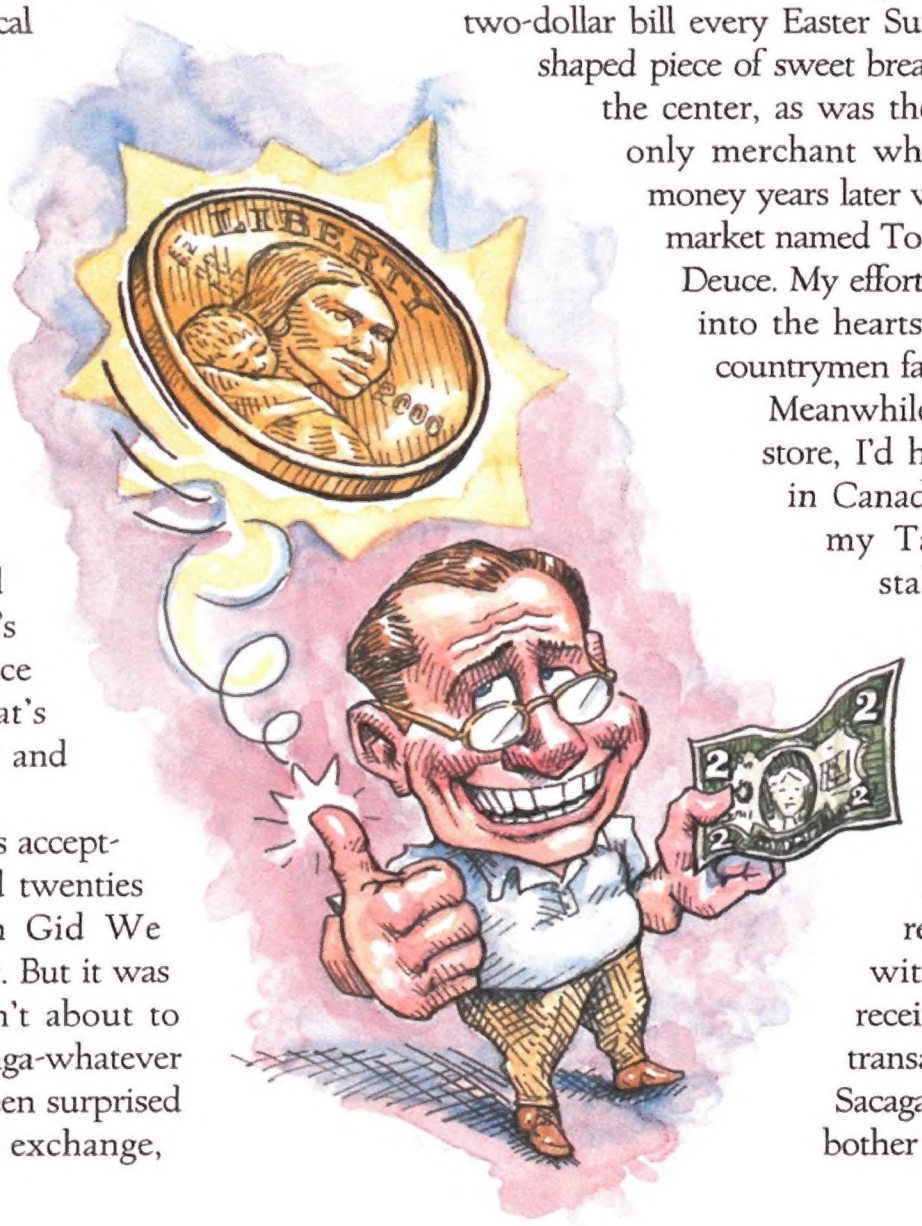
Now, no doubt this store has accepted thousands of fake tens and twenties printed with the motto "In Gid We Tust" from a runny HP ink jet. But it was clear to me these two weren't about to allow me to pass a rogue Sacaga-whatever dollar coin. I shouldn't have been surprised by the exchange—the verbal exchange, that is, for no financial one was imminent. I had encountered the same bewilderment with my quixotic attempts to rescue the two-dollar bill from oblivion.

Back in my college days in Philadelphia, it was my wont to withdraw my entire monthly budget from the bank in two-dollar bills. Such a handsome note, I thought: the inveterate statesman Thomas Jefferson on the front and John Trumbull's portrait of the signing of the Declaration of Independence on the reverse. I wanted to share this most beautiful of American bills with the community and encourage its circulation.

The local merchants hated me. No slot in the register to stick two-dollar bills, they said. Looks too much like the twenty-dollar bill, they said.

My fascination with underdog currency began in childhood. My mother, an Italian, gave my siblings and me a crisp two-dollar bill every Easter Sunday, along with a bunny-shaped piece of sweet bread with a hard-boiled egg in the center, as was the local Italian custom. The only merchant who did accept me and my money years later was a character in the Italian market named Tony, who to this day calls me Deuce. My efforts to bring Thomas Jefferson into the hearts and wallets of my fellow countrymen failed miserably.

Meanwhile, back at the convenience store, I'd have had more luck paying in Canadian nickels. Worried that my Tastykake would soon go stale, I decided to flash the only currency that the whole world smiles upon: no greenback, no portrait of a dead President, but rather the bane of numismatists everywhere. I handed the clerk a piece of rectangular plastic. And then with a flourish I signed the receipt for my seventy-nine-cent transaction, inscribing the name Sacagawea. The clerk didn't even bother to look.



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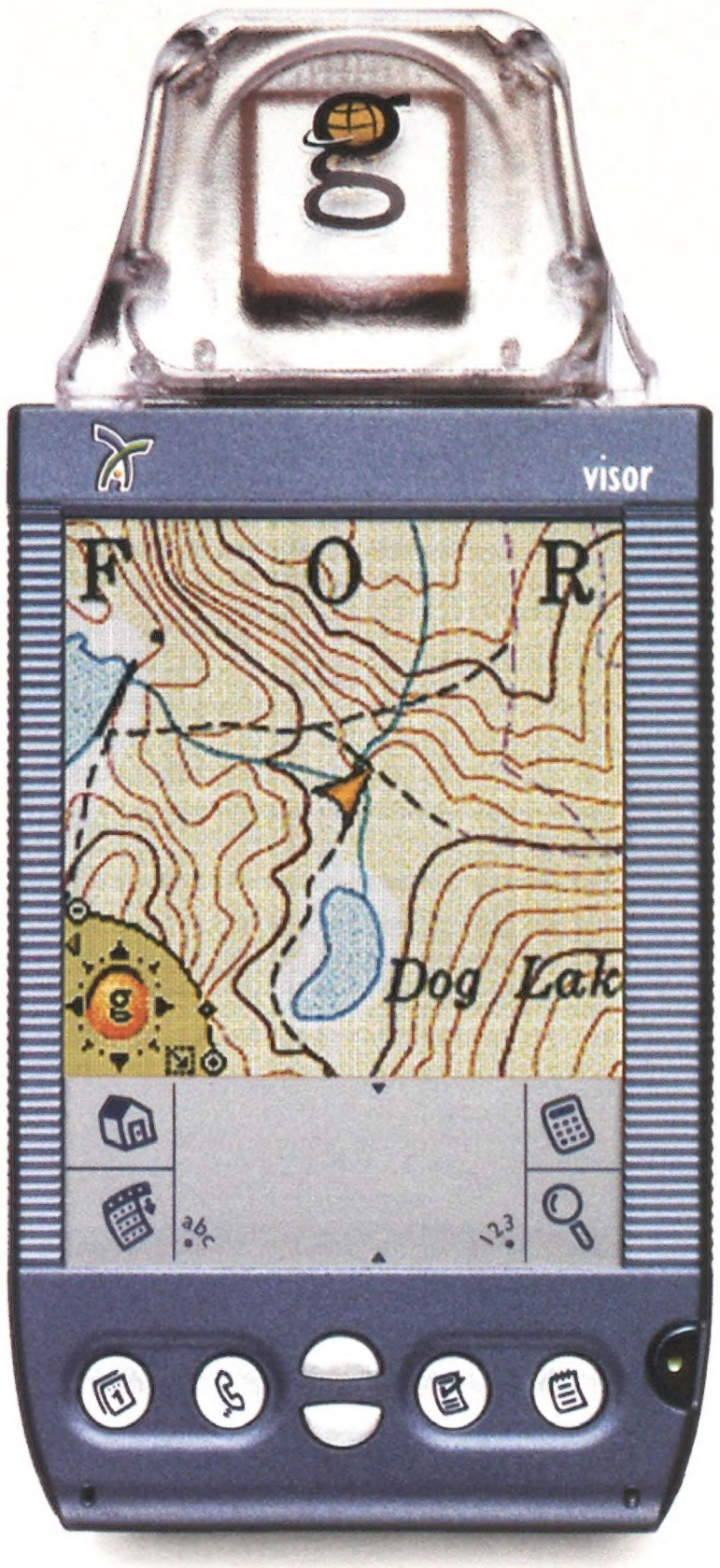

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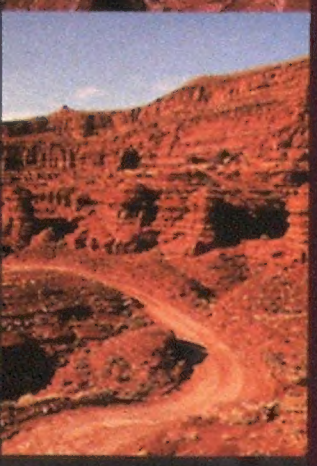

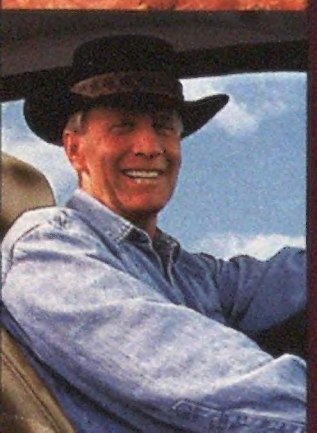

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